AMERICAN RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 136 NASSAU ST., NEW YORK, AT FIVE DOLLARS PER ANNUM IN ADVANCE.

SECOND QUARTO SERIES, VOL. VII., No. 10] SATURDAY, MARCH 8, 1851. [WHOLE No. 777, VOL. XXIV.

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American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & CO., 136 NASSAU ST.

Saturday, March 8, 1851.

Remarks upon the Defects of Railway Tracks and their Remedy.

BY BENJ. H. LATROBE, CHIEF ENGINEER OF THE BALTIMORE AND OHIO RAILROAD.

Continued from page 131.

I will now present an estimate of the cost of the iron track I propose, and will compare it with those of the several tracks treated of by Mr. Dockray, and which he says he considers "the best of their kinds." I will take, in this estimate, the scale of prices employed by Mr. D., although they are higher than those at present prevailing.

Estimate of cost of constructing 15 feet in length, of single line, laid with "Three Part Rail"—exclusive of labor in laying down the track.

6 pieces, making 2 rails, 130 lbs, per yd. 1,300 lbs. at £10 per ton.....	£5	16	1
2 pieces cross ties, 75 lbs. each. 150 lbs. at £10 per ton.....	0	13	4
18 rivets, ¼ inch diameter, ¼ lb. each, 9 lbs. at 4d. per lb.....	0	3	0
16 rivets ¼ inch diameter 1-6 lb. each, 2⅔ lbs. at 4d. per lb.....	0	0	11
Punching rivet holes, cutting stop shoulders and notches, and straightening and fitting rails for laying, at 1s. per yard.....	0	5	0
42 parts, and estimate cost of 5 yards...	£6	18	4
Estimated cost of 1 yard.....	£1	7	8
14,784 pts, & estimated cost of 1 mile	£2434	13	4

Or about $11,900 per mile—(U. S. currency.)

If we compare this estimate with those of the six different plans presented by Mr. Dockray, we will see that it is but about £70 per mile more costly than the Great Western, of which it has but about half the number of parts. That it is £126 per mile cheaper than the improved plan of Mr. D., and has but few more parts—and finally that it is but £167 per mile more than the average cost of the 6 tracks including those the least improved. If the cost of laying down the road was included in all the estimates, I apprehend that my plan would compare more advantageously, as it would certainly be more easily laid, the riveting being a rapid and cheap operation and the bedding of the rails and cross ties on the ballast being much more readily done than that of the cross sleepers and longitudinals, including the dressing and adjusting of them.

I have estimated the cost of punching rivet holes, &c., from the result of actual experience in those operations in the 3 part rail I have laid, allowing in full for the superior size, and weight of the present rail. I have also supposed each of the parts of the rail to be but 15 feet long, and two cross ties to each 15 feet length—whereas in practice I would make the rails 20 feet long, and thus save one-fourth of the joints and cross ties, and a proportion of the rivets also, as well as in the number of parts per mile sufficiently to reduce the latter to the same with that of the simplest form of track, (Sir John Macneill's method,) viz. 36 parts per 5 yards, or 12,672 parts in a mile of single line.

But lest it should be doubted whether the extent of bearing surface of my track would be sufficient, and whether timber could be altogether dispensed with, I will suppose, that instead of the cross tie of iron, every 7½ or 10 feet, there is a cross sleeper of wood every 5 feet, or 3 for every 5 yards—these sleepers being 9 feet long an 6×10 inches—containing 3¾ cubic feet—costing 5s. 6d. each—and amounting to 16s. 6d. The item then would stand in place of the 13s. 4d. of the iron ties—the spikes, which would be used in lieu of the cross tie rivets, about balancing the rivets, and the cost of punching the holes for them. Thus, by the substitution of wooden for iron cross ties, the cost o the track per 5 yards would be increased 3s. 2d., or per mile £55 15s. and the bearing surface would be increased from 1.5 to 2.83 square feet per lineal foot of track. The advantage of the rivets accompanying the iron cross tie would be foregone; but this might, perhaps, be considered as compensated by the additional bearing surface. On the other hand, a perishable material would be introduced into the structure, and the excellent characteristic of a track entirely of iron would be given up.

It is manifest that the bearing may be increased at pleasure by multiplying the cross ties, but in a track so strong and stiff there could be no motive I think, for this increased expense of construction, except where extraordinary bearing was demanded by very soft sub-soil. I think, also, that the iron cross tie yields a support and connection to the joints of the bearing rails which is highly valuable, and I shall be averse to giving it up—and if more bearing surface were regarded as indispensable, I would obtain it by inserting wooden cross sleepers at points intermediate to the iron ties. The cant of the rail with the iron tie is made by curving the tie up at the ends sufficiently for the purpose.

I have no means of comparing the cost of maintaining a "permanent way"—upon my plan with that of any of the various existing modes of construction in England. I am very confident, however, that the difference in favor of the former would be very great indeed. From observations thus far upon the track laid with the 50 lb. rail, of which mention has been made, I am satisfied that not less than a third of the labor of adjustment will be saved, and the renewal of materials should be in at least as favorable a proportion. An inspection of the rail will show the facility with which any one of the 3 parts composing it may be removed and replaced—all that is required for this purpose being the cutting off the rivet heads with a chisel. But this will be an operation rarely required, and the cheapness of the rivets makes the cost of material a matter of little consequence. If I am right in my suppositions, then the superior safety and smoothness of the new track, attended by a considerable reduction in the cost of repairs to engines and carriages, and a great increase of public security and comfort and consequently an accession to the popularity of railways as a means of travel, would all combine to place the value of the improvement in a very conspicuous position.

It will be perceived that in my estimate of the costs of the rails of the new track, I assume the same rate as for a solid bar. This might be objected to, as new patterns are always made an excuse by the manufacturers for asking higher prices, and might lead, in the beginning, to some slight difference of cost, but I have the authority of the manufacturers who made the 50 lb. rail for me, for saying, that the cost of manufacture will be no greater than that of the bridge or T rail.

The bearing rails (weighing about 50 lbs. per yard each,) will be very readily manufactured. They are in fact nothing more than "angle iron." The cap rail (of 30 lbs. per yard) contains a feature in it which would appear to make it difficult

to roll, but I think this can be managed very readily; and if not, why the feature is not at all indispensable, and, indeed, but slightly, if at all, important to the plan. I refer to the slight pitch outwards and downwards of the under sides of the cap where it rest on the bearing rails on each side of the central rib. It is evident that the rail could be rolled with these slopes in it, only by nearly completing it without them in the first place, and making them in passing it through the final groove of the rolls, leaving enough metal on the sides of the cap to press down into and fill up the triangles between the slopes and the horizontal line above them. The quantity of metal requisite for this is so small that I think it can be done easily, or it might, perhaps, be as well or better done in one or two other ways I need not describe. But if it cannot be done at all, it matters but little. The only advantage of the pitch is, that it relieves the rivets a little—but the rivets will hold perfectly well without this relief, as is known now from the experience of the 50lb. rail, in which not a single rivet has broken under a very heavy traffic, for 5 months past, although the rivets are but ¾ inch diameter, and the rail so light, while the ballast not being well packed in the first place, and the subsoil soft, there has been a good deal of irregular settlement and consequent strain on the parts. In the cap of the rail I have put into the neck of the rib, on each side, what I call a "stop." This is to keep the cap rail from moving endwise—the stop fitting into a notch cut in the lips of the bearing rails. I propose that this stop shall be made in the process of rolling, and it can be effected by cutting a notch in the tongue of the rolls into which the metal will press up, by a reverse action to that of the nipple which makes a countersink in a rolled bar. The stop as it comes from the rolls would not be square at its ends, for the notch in the tongue would have to be wider at top than at bottom to let the metal press in and pass out easily. The shoulders of the stop must then be cut square afterwards, with a chisel, and so will be cut the notches in the lips of the bearing rails. The stops may be as close as desired—they cannot be farther apart than the circumference of the rolls, say 4 or 5 feet and this, I think, would be about the right distance for them. But if they could not be conveniently made in the rolling, they could be put in afterwards by punching a square hole through the neck of the rib and putting in a plug of iron, hot, like a rivet, having metal enough to make the stops on each side of the rib, and dressing it into shape with the chisel. Or instead of the stops, the key plates already mentioned, as being used with the 50 lb. rail now laid, may be employed. They will hold the caps very well, but the stops would be preferred, and especially if they can be made in rolling the cap rails. All the rivet holes and the stop notches are made oblong, to allow for contraction and expansion. This will amply provide for it, as experience has shown, in the longest section of the 3 part 50 lb. rail, (4,500 feet,) which has now, for 10 months, passed through all the changes of our fluctuating climate, in which the extremes of heat and cold are as great as in any other. This point which seemed one of the most to be feared, is now therefore settled satisfactorily, as no inconvenience has been felt from this cause.

Among the merits of the compound rail, will be apparent that of retaining its line in curves, better than the solid rail; the breaking of the joints producing in the bearing rails a mutual counteraction of the tendency to straighten into chords, after being sprung to the curve. With bars so long as 20 feet, it is supposed that, even in the heaviest patterns, it will not be necessary to *set* them, by previous bending, which, in the solid rail, would be indispensable. The additional strain upon the rivets of the compound rail, will not be objectionable, as it will be in the direction of their length only, and much within their power of resistance.

A very remarkable advantage from the division of the rail into parts will also be the improvement in the *quality* of the metal. The disposition to increase of weight, has been checked by the difficulty of making a heavy bar perfect. It is understood that the rails of 100 lbs. per yard recently rolled have turned out so indifferently as to induce a return to lighter patterns. However this may be, it is quite certain that a single bar of any weight cannot be made as sound and tough, as two or three bars of the same length and aggregate section.—The compound principle will permit the tendency to increased weight of rail to go much farther than would be possible in the single rail.

If it should be apprehended that the detached cap of the three part rail will not wear as long as the top of the solid rail, it is answered that this is not necessarily so with a well-proportioned cap rail—and if the separation of the upper portion of the section from the lower should tend to this result, it should be counteracted by the better texture of the lighter bar. Experience, however, thus far indicates no greater wear in the cap rail than in the upper surface of solid rails in use for the same time.

To those, however, who are best disposed to admit the truth of the above remarks, it will be of interest to know what the new rail will cost in the first instance, compared with other common forms of track, and, for information on this question, the following estimates of cost for a rail of medium weight, to be laid in the most usual way, upon cross-ties of wood, are offered to show how the three part rail will, in general, compare with the solid rail in expense of construction:

Solid Rail—65 *lbs. per yard.*

1.	*Rails*—20 feet long—102½ tons, at $60 per ton	$6,158
2.	Joint fastenings of any variety of form, at 75c per joint, for 528 joints	396
3.	2112 cross ties, 7½ feet long—6×6—laid 2½ feet apart, at 20c.	422
4.	9504 spikes, 3 to the lb.—3168 lbs. at 5c	158
5.	Laying track, materials, and ballast being delivered, viz., spreading ballast, bedding and dressing cross ties, laying and fitting rails and joint fastenings, spiking, adjusting, and trimming track, at 65c per rod of 16½ feet	208
	Total estimated cost of one mile of track, exclusive of ballast	$7,342

Three Part Rail—65 *lbs. per yard.*

1.	Rails 20 feet long, 102½ tons, at $60 per ton	$6,158
2.	Rivets, 6336, ¾ inch diameter, 4 to the lb., 1584 lbs., at 6c.	95
3.	Keys, 1056, 2¼×1½×¾ inches, at 3 to the lb., 352 lbs., at 6c.	21
4.	Punching holes for rivets and key, and fitting rails for laying, at	65c. per rod.
5.	Riviting rails after laying	16 "
6.	Leveling and dressing cross-ties	17 "
7.	Spreading ballast	17 "
8.	Spiking rails	5 "
9.	Fitting, adjusting and trimming track	10 "
	Total of the above items per rod of track—$1 30 per mile.	416
10.	2112 cross-ties 7½ feet long, 6×6, laid 2½ feet apart, at 20c	422
11.	9504 spikes, (one extra at every joint) 4 to the lb., 2376 lbs., at 5c	119
	Total estimated cost of one mile of track, exclusive of ballast	$7,231
	Difference in favor of the three part rail, per mile.	111

The 4, 5, 6, 7, 8 and 9th items of the last estimate are derived from the actual experience of laying the three part rail already put down, under circumstances not at all favorable to economy. It is believed that at least 10 per cent. on the aggregate of these items could be saved in future work of the same kind upon a large scale. The entire cost of laying the solid rail track is taken at the sum of the 5th, 6th, 7th, 8th and 9th items, which is certainly favorable enough to that track. This work having generally cost at least 50 per cent. more. The cost of joint fastenings for that track is assumed at 75 cents, with less than which, a tolerably good and safe joint cannot be made, altho' many tracks have been laid with much cheaper joints.

The items of both estimates making up the cost of *workmanship* show the *net* expense—to which a fair profit for the contractor should be added in preparing estimates for actual construction. The prices of all the other items include cost of delivery and profit upon the articles.

The detail in which the estimates are given will enable any one to apply them to particular cases. For a lighter or heavier rail, the cost of fastenings and workmanship would differ little from those of the rail of 65 lbs. weight here assumed.

It will thus be sufficiently manifest that the three part rail will cost *no more* than any other rail of the same weight. With this admission, its friends may be satisfied, for its other advantages must prove its superiority, and, ultimately, it is believed, ensure its adoption.

The accompanying sketch, in figure 1, shows the rail of 130 lbs. per yard proposed for a track entirely of iron. Fig. 2 represents a rail of 65 lbs. per yard, to be laid upon timber supports. Other weights of rail from 50 lbs. upwards can readily be proportioned so as to carry the principle into effect with an advantage increasing with the weight, and it may be said of the compound rail, especially in this form, that as its division into parts, gives it, at all times, an elasticity which a solid bar of the same weight cannot possess, so it will retain that elasticity with a weight which would make the solid bar too rigid, except at the joints, where all such bars are alike weak, and the heaviest the most so in comparison with their strength in the middle of their length.

The subject has now been sufficiently discussed upon its general merits, and the facts and arguments above presented are offered to the profession, soliciting consideration and not shunning criticism. The author is but one of the laborers in this important field of improvement, and has argued the merits of the compound principle in general terms, and so far in favor of all the forms it may assume; and although decided in his preference of the three part pattern, he will be glad to see the suggestions of others, subjected to the test of experiment.

Philadelphia, Wilmington and Baltimore Railroad Company.

RESIGNATION OF ITS PRESIDENT, MR. SWIFT.

At a meeting of the directors held Feb. 11, 1851, the following communication was received from Wm. H. Switt, Esq., president of the company:—

Philadelphia, Feb. 11, 1851.

To the board of directors of the P., W. & B. R R. Co:—Gentlemen—Some six months since I communicated to a number of shareholders of the company my intention to resign the office which, by your kindness, I had been elected to fill, and more recently I have made known to members of this board individually the reasons which had induced me to leave the service of the company; reasons which I may state, here, to be entirely personal to myself and such as I have considered it my duty to regard.

To enable the board to take measures for electing my successor, it has appeared to me proper to designate a period somewhat in advance of the present day for resigning the office of president. Accordingly, with the permission of the board I propose to retire at the close of the current month.

I beg to convey to every member of this board my thanks for the uniform support and kindness which I have received at the hands of each, from the day upon which I entered upon the duties of the office of president to the present time; and for the hearty co-operation which I have met with in carrying out measures which I have considered it my duty, from time to time, to bring to the notice of the board,

in all these I am happy in being able to say that I have no recollection of a single instance in which there has not been a concurrence of opinion between myself and other members of the board, and I shall ever cherish with feelings of great pleasure the remembrance of the harmony which has characterised all proceedings of the board during the time that I have had the honor to participate in its councils.

To the officers of the company, also the secretary, the general superintendent, the agents, the clerks, all, in short, who have responsible duties to perform, I return my thanks, for to their exertions and zealous co-operation, the company owe in a very great measure their present prosperous condition.

Very respectfully, gentlemen,
Your obedient servant,
WM. H. SWIFT.

At an adjourned meeting of the board held Feb. 28th, 1851, the following preamble and resolutions were unanimously adopted and ordered to be published:

"Whereas at a meeting of the board of directors held at Wilmington on the 11th Feb. instant, a letter from Wm. H. Swift, Esq., was presented and read resigning the office of president, to take effect this day, to which time the board was adjourned, with the view of taking final action on the same; it is therefore

Resolved, That in this our accep'adce of his resignation of the presidency of this board, we should be unfaithful to the suggestions arising out of this event, if we did not at the same time, express some of the feelings which abundantly gather about our hearts.

Resolved, That it is with deep and sincere regret, felt by each member of this board, that we are called upon to place upon our records, a severance of the official relations which have subsisted with mutual and undisturbed kindness between him and ourselves.

Resolved, That he, being called to the administration of one of the most important corporations of the country, came richly endued with educational fitness, then holding a high position in the military arm of the government, practically scientific in its pursuits and employments: all the high expectations which were entertained have been amply fulfilled, and the business of the company has been conducted, under his auspices, with that wisdom and energy which is well displayed by the improved and improving condition of the affairs of the company.

Resolved, That the board of directors, in placing much of their multifarious concerns of the company under his exclusive action and control, have the satisfaction to say, that all the several matters so confided to his personal attention were promptly and well considered, and the ultimate decision justly claiming and receiving our unqualified approbation, and we freely unite with him in the declaration, that we "have no recollection of a single instance in which there has not been a concurrence of opinion between himself and other members of the board, in carrying out measures which he considered it his duty from time to time to bring to the notice of the board."

Resolved, That bearing testimony to his eminent qualifications for the management of the important interests confided to his care and supervision, and also to his faithful and zealous discharge of all his duties, it gives us pleasure to acknowledge that an attachment has been won by the affable, friendly and courteous manner which has distinguished his intercourse with each of us, and we receive with great gratificatian the assurance that he will ever "cherish with feelings of great pleasure the remembrance of the harmony which has characterized all proceedings of the board during the time he participated in its councils."

Resolved further, That we desire he will take with him this testimonial of our esteem and affection and with it our ardent wishes that in all the vicissitudes of his life, he may enjoy health and happiness, and that all his undertakings may be prosperous, and with whom or wherever he may be, his merits may be as well understood and as highly appreciated as they have been with us.

Resolved, That the secretary furnish William H. Swift, Esq., a copy of the above resolutions.

Thereafter the board proceeded into election of a successor, and unanimously chose

SAMUEL M. FELTON, President.
Attest A. CAMPBELL, Secretary.
P. W. & B. R. R. Co.

March 1, 1851.

Application of Iron to Railroad Structures.

We give below a portion of the report of the commission recently appointed by the English government to inquire into the subject of the application of iron to railroads. As the report is a very elaborate one, and embraces in its range a series of valuable experiments, we shall continue the publication of the more important parts of it.

1. *Present rules for proportioning the load of girders to their breaking weights.*

The dimensions of cast iron girders intended for sustaining stationary loads, such as water tanks and floors, are usually so proportioned that their breaking weight shall be *three times* as great as the load they are expected to carry, or in some cases *four or five times* as great. But when the girders are intended for railway bridges, and therefore subject to much concussion and vibration, greater strength is given to them by altering the above proportions, and making the breaking weight *from six to ten times* as great as the load, according to the practice of different engineers. On the other hand, some consider that *one-third* of the breaking weight is as safe a load in the latter case as in the former.*

2. *Nature of former experiments, and of those now required, and questions to be examined.*

The proportions and forms at present employed for iron structures have been generally derived from numerous and careful experiments, made by subjecting bars of wrought or cast iron of different forms to the action of weights, and thence determining by theory and calculation such principles and rules as would enable these results to be extended and applied to such larger structures and loads as are required in practice. But the experiments were made by dead pressure, and only apply therefore to the action of weights at rest. On the contrary, from the nature of the railway system, the structures employed therein are necessarily exposed to concussions, vibrations, torsions, and momentary pressures of enormous magnitude, produced by the rapid and repeated passage of heavy trains. It soon appeared, in the course of the inquiry, that the effects of heavy bodies moving with great velocity upon structures, had never been made the subject of direct scientific investigation; and as it also appeared that, in the opinion of practical and scientific engineers, such an inquiry was highly desirable, the attention of the commissioners was early directed to the devising of experiments for the purpose of elucidating this matter.

The commissioners accordingly proposed to examine the questions involved in the inquiry under the two following heads—viz.,

1. Whether the substance of metal which has been exposed for a long period to percussions and vibrations undergoes any change in the arrangements of its particles by which it becomes weakened? And,

2. What are the mechanical effects of percussions and the passage of heavy bodies in deflecting and fracturing the bars and beams upon which they are made to act?

Upon the first of these questions the commissioners cite observations and conjectures to the following effect:—

Many curious facts elicited in evidence show, that pieces of wrought iron which have been exposed to vibration, such as the axles of railway carriages, the chains of cranes, &c., employed in raising heavy weights, frequently break after long use, and exhibit a peculiar crystalline fracture and loss of tenacity, which is considered by some engineers to be the result of a gradual change produced in the internal structure of the metal by the vibrations. In confirmation of this, various facts are adduced, as, for instance, that if a piece of good fibrous iron have the thread of a screw cut upon one end of it by the usual process of tapping, which is always accompanied by much vibratory action, and if the bar be then broken across, it will be found that the tapped part is a good deal more crystalline than the other portion of the bar. Others contend that this peculiar structure is the result of an original fault in the process of manufacture, and deny this effect of vibration altogether; whilst some allege that the crystalline structure can be imparted to fibrous iron in various ways, as, by repeatedly heating a bar red-hot, and plunging it into cold water, or by continually hammering it, when cold, for half an hour or more. One witness* thinks the various appearances of the fracture depend much upon the mode in which the iron is broken. The same piece of iron may be made to exhibit a fibrous fracture when broken by a sharp short blow. Temperature alone has also a decided effect upon the fracture; iron broken in a cold state shows a more crystalline fracture than the same iron warmed a little. The same effects are by some supposed to be extended to cast iron.

The commissioners "endeavored to examine this question experimentally in various ways," which they report as follows:—

A bar of cast iron, three inches square, was placed on supports about 14 feet asunder. A heavy ball was suspended by a wire 18 feet long from the roof, so as to touch the centre of the side of the bar. By drawing this ball out of the vertical position at right angles to the length of the bar, in the manner of a pendulum, to any required distance, and suddenly releasing it, it could be made to strike a horizontal blow upon the bar, the magnitude of which (i. e. the blow) could be adjusted at pleasure, either by varying the size of the ball or the distance from which it was released. Various bars (some of smaller size than the above) were subjected, by means of this apparatus, to successions of blows, numbering in most cases as many as 4000, the magnitude of the blow in each set of experiments being made greater or smaller as occasion required. The general result obtained was, that when the blow was powerful enough to bend the bars through *one-half* of their *ultimate deflection* (that is to say, the deflection which corresponds to their fracture by dead pressure), no bar was able to withstand 4000 such blows in succession; but all the bars (when sound) resisted the effects of 4000 blows, each bending them through *one-third* of their ultimate deflection.

Other cast iron bars, of similar dimensions, were subjected to the action of a revolving cam, driven by a steam engine. By this they were quickly depressed in the centre, and allowed to restore themselves, the process being continued to the extent even, in some cases, of a hundred thousand successive periodic depressions for each bar, and at the rate of about four per minute. Another contrivance was tried, by which the whole bar was also during the depression thrown into a violent tremor. The results of these experiments were, that *when the depression was equal to one-third of the ultimate deflection, the bars were not weakened.* This was ascertained by breaking them in the usual manner with stationary loads in the centre.—When, however, *the depressions produced by the machine were made equal to one-half of the ultimate deflection, the bars were actually broken by less than nine hundred depressions.* This result corresponds with and confirms the former.

By other machinery, a weight equal to half of the breaking weight was slowly and continually dragged backwards and forwards from one end to the other of a bar of similar dimensions to the above. *A sound bar was not apparently weakened by ninety-nine thousand transits of the weight.*

* The variation of the proportion of breaking weight to load adopted—viz., *from three times to ten times*, is truly a sufficient proof of the absence of well-established principles. Any "common-sense" and non-professional person, required to select between these two limits, would, in all probability, forego all further reasoning and experiment, by "striking the average," and to this identical result, or very near it, the scientific labors of the commissioners will presently appear to have led them.

* Brunel.

From these observations, the commissioners proceed to deduce as follows:—

It may on the whole, therefore, be said, that as far as the effects of reiterated flexure are concerned cast iron beams should be so proportioned as scarcely to suffer a deflection. And as it will presently appear that the deflection produced by a given load, if laid on the beam at rest, is liable to be considerably increased by the effect of percussion, as well as by motion imparted to the load, it follows, that *to allow the greatest load to be one-sixth of the breaking weight is hardly a sufficient limit for safety, even upon the supposition that the beam is perfectly sound.*

The practical truth of the approximate rule thus derived will evidently depend, not only on the correctness of the experiments, which is not to be questioned, but also on the correspondence of the several conditions under which they were made, with those affecting the structures referred to; and since the application of the rule would impose a large increase of section in girders designed to support railway bridges, every item of the data upon which it is founded claims the scrutiny of the inquirer.

The report proceeds to state, that—

In wrought iron bars no very perceptible effect was produced by 10,000 successive deflections by means of a revolving cam, each deflection being due to half the weight which, when applied statically, produced a large permanent flexure.

From the Merchant's Magazine.

Internal Improvements of the State of New York.

A SKETCH OF THE RISE, PROGRESS, AND PRESENT CONDITION OF INTERNAL IMPROVEMENTS IN THE STATE OF NEW YORK.

Continued from page 115.

ENLARGEMENT OF THE ERIE CANAL.

In January, 1836, the Canal Board made a report to the Assembly, (Doc. 98,) giving an account of the preliminary arrangements for enlarging the Erie canal, and doubling its locks. In July, 1835, the board "resolved that the canal be enlarged, so as to give six feet depth, and sixty feet width of water on the surface; and that the locks be 150 feet long, and 15 feet wide in the clear."

Three members of the board voted for a canal 8 feet deep by 80 feet in width; one for 7 and 70; and seven members for 6 feet in depth and 60 in width. At an adjourned meeting in October, a vote was carried for enlarging the canal to 7 feet in depth and 70 in width; the following members adhering to their original vote for a canal 6 feet in depth and 60 in width, viz: Lieut. Governor Tracy, Samuel Young, John A. Dix, and A. C. Flagg; Gen. Van Rensselaer adhered to the same opinion, but was absent when the last vote was taken. It was decided to make the locks 110 feet long, and 18 feet wide; 3 feet wider than the old locks.

It was estimated by the State Engineers that the construction of double locks, and the enlargement of the canal to 7 feet in depth and 70 feet in width, would cost $12,416,150; and to 6 feet deep and 60 wide, $10,368,331; not including the cost of land damages in either estimate.

This report refers to estimates made by John B. Jervis, and Holmes Hutchinson, for the purpose of showing the relative capacity and expense of transportation on canals of various dimensions, and with boats of different sizes. Mr. Jervis was in favor of a canal of the largest size, 8 by 80, while Mr. Hutchinson's estimate favored a canal 6 by 60, or 6½ by 65.

It was assumed in the report of the Canal Board that the enlargement of the canal, as finally settled, 7 by 70 feet, would lessen the expense of transportation, exclusive of toll, about 50 per cent. The cost of transportation, exclusive of toll, for the last seven years, averages nearly 50 per cent. less than for the preceding seven years. This has been effected by bottoming out the canal, and giving to the transporter four feet of water, as originally contemplated when the Erie canal was constructed. Assured of four feet of water, honest measure, those engaged in canal transportation have constructed a class of boats which will carry 80 tons, drawing about 3½ feet of water, and of a length and breadth adapted to the old locks of the Erie canal.

At the legislative session of 1836, acts were passed authorising the construction of the Black River and Genesee Valley canals; for the construction of a towing path from Mud Lock, on the Oswego canal, along the Seneca river to Baldwinsville; to reconstruct the locks on the Cayuga and Seneca canal of the width of the enlarged Erie locks, and make them of stone; and to replace the wooden locks on the Glenns Falls feeder with stone locks. Laws were also passed for the relief of the Chenango canal contractors, under which the canal board made allowance to the amount of $254,000.

At the same session, charters were granted for forty-three railroads, nine of which have been constructed, viz: Albany and West Stockbridge, Attica and Buffalo, Auburn and Rochester, Lake Champlain and Ogdensburg, Lewiston, Rutland and White Hall, Schenectady and Troy, Shaneateles, and Syracuse and Utica. An act was also passed, chap. 170, to expedite the construction of the New York and Erie railroad, authorising a loan of the credit of the State to said company for three millions of dollars, on certain conditions.

Governor Marcy, in his annual message of 1836, said: "I have not been without apprehensions, and I still entertain them, that internal improvements cannot be long prosecuted on an extensive scale, unless sustained by a wise system of finance. No new work can be executed without using the public credit, and however high that credit is at this time, it cannot be liberally used, and long upheld, without some financial arrangements that will inspire confidence at home and abroad." "I have heretofore expressed, and I deem it appropriate now to repeat, my regret that we have departed from the wise system in relation to finance under which our first public works were commenced, to the evident detriment of the general cause of internal improvements. The improvident practice of borrowing money without providing available funds for paying the interest, has already been carried to a point beyond which it cannot be pushed, without producing serious mischief." "Can we, with propriety, ask capitalists to put faith in our contracts, on the ground that the people, in some future age, will do what we decline to do, burden their resources to pay the interest, which, in our time, were suffered to accumulate on the debts we had contacted?"

In the annual report of the comptroller, it was shown that in all the laws for borrowing money, after the completion of the Erie and Champlain canals, the safe financial policy embodied in the act of 1817, had been disregarded. And the report said: "If money is to be borrowed, to be expended upon works which promise no return to pay interest or principal on the loan, a sum sufficient to pay the interest at least, should be provided by a direct tax." And again, "If new canals are to be commenced, or if stock is to be issued for any object whatever, on the credit of the people, the establishment of a system of revenue on a firm basis, should precede any further use of such credit; and this system ought to be made sufficiently broad to cover $150,000 annually, to pay interest on the lateral canal debts."

Notwithstanding these admonitions in the message of the governor and the report of the comptroller, the legislature passed laws for borrowing two millions eight hundred thousand dollars to construct the Black River and Genesee Valley canals, and the only auxiliary funds provided for the payment of interest, was the amount of premiums which might be obtained on the stock. This proved to be nothing, and there was some difficulty in negotiating the loan at par. The legislature also authorised a loan of three million dollars to the Erie railroad, depending on the company to pay the interest.*

This act required the company to construct 145 miles of road, before receiving any portion of the stock, but this restriction was removed by acts passed in 1838 and 1840.

James Powers introduced a resolution in the senate, calling on the finance committee to inquire into the expediency of passing a law "levying a tax sufficient to pay the interest on all debts for which no means are provided." Mr. Van Schaick, chairman of that committee, made a very full and able report on the finances, [Doc. 35], and recommended a half mill tax for five years; and also, that whenever the legislature proposes to construct a new canal, a section shall be added to the law, for levying a tax equal to the interest on the moneys to be borrowed, and to make up any loss on the work to be constructed. These salutary recommendations found no favor with the legislature of 1836. In the session of 1837, fifteen railroads were chartered, none of which, it is believed, have been constructed. No act was passed for any new canals.

In 1838, George W. Patterson, late lieutenant governor, was chairman of the canal committee of the assembly, and made a call on the canal commissioners for the amount of means at their disposal applicable to the enlargement of the Erie canal, and inquiring how much work they could immediately put under contract, provided the legislature should authorise loans to go on with it. The commissioners answered; that the work under contract was limited to the estimated surplus revenues of the canals; and they referred to various points on the Erie canal, where it would be necessary to commence without delay, if it was intended to complete the enlargement in five years. Mr. Patterson reported a bill to the assembly, requiring the commissions to put under contract, with as little delay as possible, the sections referred to in their report, and also such other portions as in the opinion of the canal board will best secure the completion of the entire enlargement within five years, "and for supplying the funds necessary to complete the work within that time, the faith of the State is hereby pledged." This bill passed the assembly by a vote of 91 ayes to 3 nays; and, with some modifications, passed the senate by a vote of 17 to 6.—In about two years from the passage of this law, additional canal contracts were made, to an amount of more than ten millions of dollars.*

The efforts of Mr. Patterson in favor of completing the enlargement of the Erie canal in five years were ably seconded by the committee on ways and means, and by the celebrated report of Samuel B. Ruggles, a member of assembly from the city of New York, and chairman of that committee. This report reviewed the financial policy of the State for a series of years, commencing with Mr. Wright's report in the senate in 1827; and came to the conclusion that a tax, and other measures proposed by the financial officers for preserving the credit of the State, were not required, and that if the legislature deemed it expedient to construct canals, and assume railroads which had been con-

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* The legislature of 1836 was strongly impregnated with the "unregulated spirit of speculation," to which Governor Marcy alluded in his message. In that year, the foundation was laid for an expenditure of not less than seven millions of dollars, on the Black River and Genesee Valley canals; and, including interest on the stock from 1842, a loss to the treasury of $6,256,261 55, on the Erie railroad loan. Of the twelve banks chartered at that session, one-half of them failed, previous to the close of 1842, drawing from the safety fund a million of dollars to cover their defalcations.

* The canal commissioners in their annual report of 1839, give the following account of the amount of work which they had put under contract, viz:

On the Erie canal enlargement, p. 22..	$10,405,913
On the Black River canal, page 33....	1,564,834
On the Genesee Valley canal, page 43.	4,750,122
Total amount of contracts.....	$16,720,869

All but three millions had been contracted for within 15 months preceding January, 1839. Gov. Seward, in his message of 1842, page 17, says:—"The then commissioners, under the law of 1838, entered into contracts, pledging the treasury to pay sums equal to $12,477,336; all of which, except $579,204, was made payable before May, 1842."—Before that time, 6 per cent State stock had depreciated from 7 per cent above par, in April, 1838, to 22 per cent below par.

structed by companies, the State might, without endangering its credit, or exposing its people to taxation, borrow four millions a year, for ten years, to be applied to these purposes; and an act was passed appropriating four millions of dollars for the year 1838.

Wm. H. Seward was chosen governor in November, 1838, and in his first annual message in January, 1839, after recommending that the patronage of the State should be extended to three great lines of improvement from the Hudson to Lake Erie, from Albany to Buffalo, and from Lake Champlain to Lake Ontario and the St. Lawrence, he referred to the report of the committee on ways and means of the preceding year, in the following terms:

"I respectfully refer you to a report of a committee of the last house of assembly, in which this subject is discussed with eminent ability, and which results in showing that the canals are a property substantially unincumbered;† that their productiveness would warrant the State in expending in internal improvements, $4,000,000 annually, during a period of ten years; and that the revenues of the canals alone, would reimburse this expenditure previous to the year 1865. This sum far exceeds any estimate of the expense required to complete the entire system, while it is not to be doubted that the parts yet to be constructed will eventually be productive of revenue. The conclusions of this report, although of vast interest to the State, and, I trust, decisive of its policy, have not been questioned."

In the annual report of the comptroller, made to the legislature a few days after the message, the policy of adding forty millions of dollars to the State debt was questioned, and the financial policy recommeded from 1827 to the period referred to, was defended, in reference to the remarks made upon it in the report of the committee on ways and means, in 1838. The reader is referred to assembly doc. No. 242 of 1838, for Mr. Ruggles' report; and assembly doc. No. 4 of 1839, for that of Mr. Flagg.

The assembly of 1839 passed bills authorising the issue of State stock to the amount of $4,815,000 for canals and railroads. These bills were all rejected by the senate, with the exception of one, appropriating $75,000 for the improvement of the Oneida river.

The finance committee of the senate consisted of Col. Young, Gulian C. Verplanck and Alonzo C. Paige; and each made a separate report on finance. These are documents 96, 101 and 103 of the senate of 1839.

Samuel B. Ruggles was appointed a canal commissioner at this session, and discharged the duties of an acting commissioner.

In his annual message, in 1840, Governor Seward complained of errors in the estimates for the public works, and stated that "the confidence of the people in the policy of internal improvement, has sustained a severe shock, from the discovery that the State was committed by the legislature to an expenditure of thirty millions of dollars, for the completion of three works alone, upon estimates of the same works rising only to about fifteen millions." "The discovery of the errors of our predecessors, has happened at a time when confidence is impaired, property depreciated, the sale of real estate arrested, and currency disordered." "The policy indicated by public sentiment, and demanded by the circumstances of the times and the condition of the State, is to retrench the expenditures upon our works of internal improvement, and prosecute the system with consideration and economy." "It is doubted whether the Erie canal would not have been adequate for all useful purposes, if the scale of enlargement had been much less extensive than that fixed by the canal board; and it is certain that smaller dimensions, or a more tardy enlargement would have been adopted, had the estimates of the canal commissioners presented truly the cost of the work."

† The message gave the debt of the State, over funds on hand, at $6,728,687 25. This did not include loans to railroads, for the reason, as stated in the message, that "the issue of those stocks is regarded as a loan of the credit of the State upon undoubted security."

In the assembly, Charles A. Mann, the present senator from Oneida, introduced a resolution, calling on the canal board for opinions relative to a change in the size of the enlargement, the length of time for its completion, the probable increase of tolls, and how much the debt could be increased during the next seven years, without resort to direct taxation, etc., and the extent to which aid may be given by loans of State credit to enterprises for internal improvements, without injury to the financial arrangements.

The answer to this resolution was drawn by J. C. Spencer. The estimate for tolls in future was based on the actual rate of increase from 1826 to 1839, in each period of ten years, at the same rate of annual increase, (7½ per cent.) to be applied to the seven years referred to in the resolution. The table thus constructed is remarkably accurate, varying from the actual results only a few thousand dollars in each year. The report came to the conclusion that "the debt of this State can be increased fifteen millions of dollars, at an interest of six per cent. during the next seven years, or twenty-one millions at five per cent. without being obliged to resort to direct taxation, or to loans to pay interest." The report also expresses an opinion, that in addition to three or four millions for the canals, in the ensuing year, another million might be loaned to railroads. The canal board came to the conclusion that no change could at that time be advantageously made, in the size of the enlargement, or the character of the work. See assembly doc. No. 306, of 1840.

To be continued.

Iron Lighthouse for the American Government.

We have been favored by Mr. John Walker, of Gracechurch street, with a view of a corrugated iron lighthouse, which he is at present constructing for the American government. It is, we believe, to be fixed on one of the keys off the coast of Florida. He has only contracted for the iron part of it, the lantern to be furnished by the Americans who are to erect it. It is now being put together at the Shepherd and Sheperdess fields, New North-road, Hoxton.

The foundation is to consist of 16 solid wrought iron screw piles, which will be bedded in the solid rock, and are to rise 15 feet above it; 12 of these pillars will be disposed to form a square 45 feet each way. The remaing four will make a smaller interior square, and will be the foundation for the tower. On these, iron girders are to be placed, and above them a thick flooring of oak plank forming a platform, from which the lighthouse will spring. We now come to the part which is to be seen erected at Hoxton. It may be divided into two parts—the house for the keepers of the light, and the lantern tower. The house is 38 feet square and 11 feet in height, and is made of a double casing of corrugated iron three-eighths of an inch in thickness, and placed 5 inches apart.

It is divided into nine rooms by partitions of a similar construction; the doors, windows, corners of the house, places where the partitions join the sides, and top and bottom of the sides, are all cased with angle iron. In a wooden house the angle iron is represented by the timbers, and the corrugated plates by the boarding. It is surmounted by a curved roof, which is of single iron plate, inside of which will be placed a timber roof, without this the heat would be intolerable. The whole of the house is bolted together in pieces 2 feet 6 inches in width. The tower is raised thro' the roof and from the centre of the platform. It is also made of a double casing of iron, is cylindrical, and 7 feet inside in diameter. It is divided into rings 6 feet in height bolted together, and each ring is lifted to its place in two pieces. The height from the platform to the commencement of the lantern is 76 feet.

The tower derives much strength from a spiral castiron staircase which ascends to the lantern floor, and is supported by a solid iron newel. Each step, as it is bolted to the side, and also to the newel, forms a stay in itself. To secure additional stiffness, pieces of gaspipe are to be placed between the castings every 11 inches, and to be bolted through. In addition, from the piles 12 staves of cast iron pipe, 11 inches in diameter, will rise and be inclined to meet the lower at the top, just beneath the lantern, and also four stays from the inner piling. This again will be stiffenened with vertical, horizontal, and diagonal bracing, so that when erected it will have the appearance of a pyramid of iron net work, surmounted by a lantern, and enclosing a house and monster chimney.

The double casings spoken of will not only be a great advantage with regard to strength, but also for the purpose of ventilation. Openings are made at the bottom of the building in the partitions and the tower, so that a free current of air will pass everywhere. The form of corrugated iron, which may be described as a succession of waves in and out, or curves of contrary flexure, gives great strength in itself. What with the bracing, and the way in which both house and tower are tied together, it is supposed that it will completely resist a hurricane. The building will shortly be completed and shipped to its destination.—*London Shipping Gazette.*

European and North American Railway.

Telegraphic despatches from St. John and Fredericton, received on Saturday evening, announce the passage of the bill incorporating the European and North American railway, through the Assembly on Tuesday last. The bill gives authority for amalgamation of the company with companies under the same name in Maine and in Nova Scotia. The facility bill, similar in its terms to the Canadian law, guaranteeing the interest on half the cost of the road, has been introduced as a government measure, and is sure to pass.

Nova Scotia.—A bill has been introduced into the house of assembly in Nova Scotia, for incorporating the European and North American railroad, in that Province. The consideration of the bill by unanimous consent, was postponed till after the arrival of advices from the Hon. Mr. Howe, now in England, expected by the steamer Europa, to sail on the 15th inst.

In the event of the failure of Mr. Howe, to obtain the direct assistance of Rritish government, it is proposed to adopt in Nova Scotia, the same policy as in New Brunswick, and carry out the plan of the Portland convention.

We learn that the attempt on the part of the house and the present ministry in Nova Scotia, to make the road in that Province as a government measure, was in opposition to the opinions of a majority of the executive committee, and that no confidence has ever been entertained by them in the success of Mr. Howe's mission, if he sought to obtain direct assistance from the British government. By adopting the policy of Canada, which has been favorably received by the British government, it is believed that the road can be carried successfully through.—*Advertiser.*

New York Canal Tolls for 1851.

The following table shows the rates of tolls which the canal board have fixed upon for the present, with the amount of reduction from the past year.

	From	To
Beef salted	4 mills	3 mills
On passenger boats who elect to commute	4 cents	3 cents
Cheese	4 mills	3 mills
Copper Ore	1 "	½ "
Drain tile, (new article)		2
Hide, raw, dom an U. S	4 "	"
Railroad Iron	4 "	2½ "
Oysters in shell going from tide water	5 "	4 "
In can or keg, (new class)		4 "
Shingles per M pds, instead of per M shi'ls		4 "
Tin in boxes		5 "
Square and round timber transported in raft, except dock sticks, if transported between 15th June and 15th August		7 "
When transported prior or subsequent to date above specified, the toll is		1 cent
Wheat	4 "	3 mills
Flour	4 "	3 "

U. S. Mint.

The Philadelphia American of yesterday says:—The annexed statement, for which we are indebted to the Treasurer of the U. S. Mint, E. C. Dale, Esq., shows the operations of that institution for the month of February. The total coinage during the month of February was $5,115,353, against $2,705,193 40 in January, showing an increase of $2,410,164 60, or near 90 per cent. By the middle of the present month it is confidently expected that all deposites, upon the ascertainment of their value, will be paid promptly, even should they reach to six or seven millions a month. The present paying point extends to deposite No. 1958 inclusive.

GOLD COINAGE.

	Value.
228,049 double eagles	$4,560,980
133,326 quarter eagles	333,315
188,702 gold dollars	188,702
550,077 pieces	$5,082,997

SILVER COINAGE.

105,000 dimes	10,500
100,000 half dimes	5,000

COPPER COINAGE.

1,686,610 cents	16,866
2,441,637 pieces, value	$5,114,863

Gold bullion deposited for coinage, from 1st to 28th of February, 1851, inclusive:—

From California	$2,360,000
From other sources	140,000
	$2,000,000
Total	$2,000,000

Silver bullion deposited for coinage, from 1st to 28th February, inclusive. $7,700

Indebtedness of European States.

The following interesting and useful table of the amount of public debt of the different European nations, was furnished to us by a gentleman, who spent some time in Europe a few years since, on a diplomatic mission.

Country.	Popul'n.	Area in acres.	Debt.	Interest.	Total debt.	Total interest.
Belgium	4,230,000	8,044,166	$6,000,000	4 per ct.	$26,000,000	$1,240,000
Denmark	2,097,400	3,247,680	20,000,000	"	65,000,000	1,950,000
Holland	2,920,000	8,889,600	65,000,000	"	407,900,000	12,170,000
France	33,000,000	129,340,000	82,900,000	"	884,500,000	38,539,444
Portugal	3,400,000	22,080,000	47,500,000	"	38,755,500	2,627,775
Prussia	13,800,000	67,942,000	10,000,000	"	58,755,500	7,800,000
Russia	51,100,000	1,306,757,700	28,755,500	"	97,500,000	2,362,968
Spain	11,963,000	112,947,200	30,000,000	"	47,259,375	19,600,000
Great Britain	26,861,000	74,688,000	97,500,000	"	400,500,000	111,476,260
Grand aggregate			368,000,000	"	$3,430,479,980	$197,666,447
To these should be added unfunded debt of England			2,418,100,650	"		$237,209,510
In annuities			32,500,000	"	$5,407,993,855	$306,867,065
			1,112,378,330	3¼		

COST OF RAILROADS OF THE STATE OF NEW YORK, 1850.

NAME.	Miles in operation.	Capital stock by charter.	Amount of stock subscribed.	Amount paid in by last report.	Amount of capital stock now paid in.	Funded debt by last report.	Present amount of funded debt.	Floating debt as by last report.	Present amount of floating debt.	Am't now of funded and floating debt.	Interest per ct. on funded debt.	Cost of road per last report.	Cost of road to present time.
Albany and Schenectady	17	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00	552,000 00	700,000 00	none.	none.	700,000 00	6	1,698,284 78	1,711,412 30
Albany and W. Stockbridge	384	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00	.....	.....	930,895 01	930,895 01	930,895 01	.....	1,930,895 01	1,930,895 01
Attica and Buffalo	311	800,000 00	800,000 00	800,000 00	800,000 00	.....	.....	67,176 43	42,676 43	42,676 43	7	870,648 56	906,915 16
Auburn and Rochester	78	3,000,000 00	2,195,765 00	2,151,765 00	2,196,765 00	638,000 00	595,000 00	60,000 00	30,000 00	625,000 00	6¼	2,968,837 15	3,000,000 00
Auburn and Syracuse	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Buffalo and Niagara Falls	22	393,750	393,750 00	256,250 00	367,796 00	46,670 00	21,670 00	25,886 00	12,495 00	34,165 00	7	395,737 08	428,241 39
Cayuga and Susquehanna	35	500,000	168,000 00	118,000 00	168,000 00	.....	300,000 00	253,000 00	134,849 83	434,849 83	7	.....	580,310 91
Chemung	.....	380,000	380,000 00	375,000 00	380,000 00	70,000 00	70,000 00	5,000 00	5,000 00	75,000 00	7	450,000 00	450,000 00
Hudson and Berkshire	31½	450,000	380,000 00	375,000 00	425,000 00	326,000 00	325,000 00	41,549 92	47,149 92	372,149 92	6¼	819,631 45	821,331 45
Hudson River	75	4,000,000	3,400,162 17	3,157,175 00	3,310,552 17	1,867,625 00	3,486,750 00	88,101 12	111,151 37	3,697,901 37	7	5,003,675 39	6,666,681 55
Long Island	337	10,500,000	6,031,100 00	5,778,891 00	5,801,285 29	5,839,918 90	9,856,568 90	2,481,647 41	2,475,864 64	12,332,433 54	7	16,430,863 63	20,323,581 03
New York and Erie	80	5,000,000	3,898,750 00	.....	3,887,930 00	.....	365,503 48	.....	212,684 57	578,278 05	6¼	.....	4,666,208 05
New York and Harlem	61	3,000,000	2,500,000 00	1,329,517 59	2,499,250 00	.....	881,000 00	.....	37,497 14	918,497 14	7	1,863,291 34	3,417,737 14
New York and New Haven	44	2,000,000	2,000,000 00	350,000 00	1,334,612 91	388,000 00	1,081,232 58	313,957 03	546,650 04	1,627,882 54	7	1,548,352 95	2,979,937 31
Northern	35	350,000	350,000 00	350,000 00	350,000 00	182,000 00	200,000 00	22,906 07	10,463 47	210,463 47	7	674,798 97	571,774 21
Oswego and Syracuse	254	300,000	300,000 00	300,000 00	300,000 00	185,500 00	185,500 00	.....	4,379 00	189,879 00	7	.....	687,324 47
Rensselaer and Saratoga	104	4,200,000	3,364,979 75	.....	3,364,979 75	.....	916,000 00	.....	.....	916,000 00	6	.....	4,200,000 00
Rochester and Syracuse	22	300,000	300,000 00	300,000 00	300,000 00	42,000 00	42,000 00	23,365 00	22,550 00	64,550 00	7	396,304 25	396,379 53
Saratoga and Schenectady	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Saratoga and Washington	20½	650,000	650,000 00	650,000 00	650,000 00	20,500 00	59,730 00	16,205 69	1,698 89	61,398 89	7	672,900 25	680,046 32
Schenectady and Troy	53	2,400,000	2,400,000 00	1,802,000 00	2,400,000 00	80,000 00	48,000 00	.....	.....	48,000 00	7	2,363,043 55	2,490,083 99
Syracuse and Utica	53	1,000,000	1,000,000 00	950,000 00	1,000,000 00	159,500 00	159,500 00	43,653 48	7,348 67	166,848 67	6	1,150,968 23	1,216,820 91
Tonawanda	43½	275,000	274,400 00	274,400 00	274,400 00	5,700 00	4,550 00	5,133 42	4,100 72	8,650 72	7	278,024 83	283,527 93
Troy and Greenbush	6	3,560,000	3,560,000 00	3,494,010 00	3,494,010 00	102,500 00	102,500 00	.....	.....	102,500 00	7	4,006,428 02	4,143,918 00
Utica and Schenectady	78	3,560,000	690,100 00	227,829 46	467,636 37	.....	200,000 00	.....	.....	200,000 00	7	216,325 31	603,457 23
Watertown and Rome	24	1,500,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
NEW CORPORATIONS.													
Buffalo and State Line	.....	1,000,000	1,000,000 00	.....	31,932 45	.....	.....	.....	.....	.....	.....	.....	32,120 15
Canandaigua and Corning	.....	1,600,000	445,800 00	.....	64,457 62	.....	.....	.....	.....	.....	.....	.....	45,254 73
Sackett's Harbor and Ellisburgh	.....	150,000	150,000 00	.....	24,778 68	.....	.....	.....	.....	.....	.....	.....	22,888 97

RAILROADS OF NEW YORK, 1850.—COMPILED FROM REPORTS MADE IN ACCORDANCE WITH THE LAW.

NAMES.	Miles in operation.	Miles run by passenger trains.	Whole number carried in the cars.	Number carried one mile.	Number carried each mile run.	Earnings from passengers.	Expenses of passenger business.	Earned per passenger per mile—cents.	Cost per passenger per mile—cents.	Earned per mile run—cents.	Cost per mile run—cents.	Profit per passenger per mile—cents.	Profit per mile run—cents.	Miles run by trains.	Total tons carried.
Albany and Schenectady...	17	51,545	284,279	4,832,743	93¾	132,207 69	48,765 00	2·735	1·009	256	94	1·726	162	32,248	63,012
Auburn and Rochester.....	78	179,550	271,303⅛	13,711,977	76⅜	386,616 13	115,583 45	2·82	·843	215	64	1·976	151	62,016	34,145
Hudson and Berkshire.....	31½	38,896	33,491	546,592	14	14,771 63	13,222 43	2·702	2·419	38	34	·283	4	17,680	23,809
Hudson River.....	75	158,431	509,180	17,821,300	112	242,595 10	144,647 53	1·361	·812	153	91	·549	62	25,080	5,745
Northern.....	44	10,332	5,922	200,730	19½	6,623 19	3,057 16	3·299	1·772	64	34	1·527	30	17,341	12,074
Oswego and Syracuse.....	35	58,480	77,162	1,937,085	33	57,118 33	32,607 24	3	1·683	97	55	1·317	42	16,000	7,949
Rochester and Syracuse...	104	55,952	93,561⅛	5,964,535	106⅛	176,991 47	64,806 74	2·967	·789	316	84	2·178	232	15,400	9,604
Tonawanda.....	43½	115,884	256,404	9,571,050	82½	255,252 80	74,567 03	2·667	·779	220	64	1·888	156	38,144	29,211
Troy and Greenbush.....	6	47,792	237,796	1,426,776	30	33,904 46	32,873 45	2·376	2·304	71	69	·072	2	6,921	38,988
Utica and Schenectady....	78	229,940	370,988½	22,430,109	97⅛	595,472 27	175,127 99	2·655	·781	251	76	1·874	175	93,580	98,695
New York and New Haven	61	282,797	652,122	20,867,904	73⅛	402,358 17	218,062 43	1·923	1·045	142	77	·878	65	25,688	15,473

NAMES. [Continued.]	Tons carried one mile.	Tons each mile run.	Earnings from freight.	Cost of freight business.	Earned per ton per mile—cents.	Cost per ton per mile.	Earned per mile run—cents.	Cost per mile run—cents.	Profit per ton per mile.	Profit per mile run.	Earnings from sources other than passenger and freight.	Total earnings.	Total expenses transportation.	Dividends. Amount.	Time covered by report.
Albany and Schenectady...	1,071,204	33 1-5	70,242 69	42,406 98	6·557	39·58	218	131	2·6	87	6,134 50	208,584 88	91,171 98	70,000 00	12 months.
Auburn and Rochester.....	2,663,310	43	111,998 49	47,882 19	4·205	1·798	180	77	2·407	103	17,196 32	515,810 94	163,465 64	260,851 80	10 "
Hudson and Berkshire....	577,130	32½	25,269 28	13,127 45	4·378	2·274	143	70	2·104	73	1,000 00	41,040 91	27,349 88	.....	12 "
Hudson River.....	229,800	9	18,575 56	9,235 94	8·083	4·019	74	37	4·064	37	6,490 00	267,660 66	167,383 47	.....	12 "
Northern	196,098	11¼	11,187 69	8,760 50	5·705	4·977	64	50	·728	14	347 69	18,158 57	12,317 66	.....	12 "
Oswego and Syracuse.....	267,089	16⅜	9,061 32	6,335 68	3·392	2·372	56	39	1·020	17	12,191 96	78,371 64	38,942 92	14,000 00	12 "
Rochester and Syracuse....	838,530	54·4	24,444 74	18,759 36	2·676	1·640	158	89	1·036	69	.....	201,436 21	60,876 58	.....	2 "
Tonawanda	859,807	22½	67,668 37	35,055 55	7·87	4·077	177	92	3·793	85	21,476 88	344,398 05	109,622 27	92,000 00	12 "
Troy and Greenbush.....	233,930	34 4-5	24,261 63	11,060 70	14·647	4·728	350	159	9·919	191	1,252 72	59,418 81	43,054 48	8,232 00	12 "
Utica and Schenectady....	4,760,730	50	255,668 47	133,045 87	5·370	2·797	273	142	2·573	131	72,285 25	923,425 99	308.173 86	356,000 00	12 "
New York and New Haven	625,000	24¼	26,818 91	19,823 95	4·291	3·172	107	73	1·119	34	32,612 23	461 789 31	237,886 38	174.930 00	12 "

Railway Law Case.

In the Court of Common Pleas, at Claremont, N.H., last week, the case of Alvah Smith, versus Nashua and Lowell railroad company was tried. In the spring of 1849 the plaintiff had a large quantity of hides transported by the company, and which he alleged were left in the depot of the corporation to be safely kept until the plaintiff should have had a reasonable time to take them away. He further alleged that through the negligence of the agents or servants of the corporation, the hides were suffered to become wet and to remain in that condition till they were greatly injured, &c.

The defence of the corporation was, that their agent notified the plaintiff when the hides arrived at the depot, that they could not remain there for want of room, and that he must take them away, and it was further contended that in point of fact there had been no negligence on the part of the corporation, in the care of the property.

The court instructed the jury, that the corporation could not be held as common carriers—that their duty as common carriers was performed, as soon as the goods were deposited in a safe place at the end of the route, and they could after that, be made liable only as depositories without there, in which case they could not be charged unless guilty of gross negligence. The jury were further instructed that the plaintiff must make out a contract, but that notwithstanding he was told that he must take away the hides, still the jury might infer from the fact that the hides were actually stored away by the defendants agents, and from the other facts of the case that the defendants finally consented to let them remain. The jury returned a verdict for the plaintiff of five hundred and fifty dollars damages.—*Railway Times of the 27th ult.*

Maine.

The people of Bangor are moving in the project of the construction of a railroad up the Penobscot river to Lincoln, a distance of 48 miles from Bangor, and 36 from Oldtown, the terminus of the Bangor and Oldtown railroad. A meeting was recently held in that city, at which the Mayor presided, with Gen. Veazie, Ira Fish, Asa Smith, and F. M. Sabine, vice-presidents. The committee on resolutions, reported the following, which were unanimously adopied:

Resolved—That a railroad up the Penobscot river is imperatively demanded, to give Bangor a cheap and easy connection with the forests which supply the material of its principal business, and with a region of vast extent and fine agricultural capacities which it would open to a rapid and prosperous settlement; and to recover and retain for Bangor the trade of the county of Aroostook, now being directed down the river St. John.

Resolved—That such a railroad, along a route already thronged with travel and freight, running into a country, the resources of which are susceptible of an indefinite expansion and developement, exposed to no risk of competition in all future time, commanding the travel of the lower British Provinces, and destined to be a part of the line of road which will connect the mineral wealth of Piscataquis county with tide-water, offers inducements as an investment of capital unsurpassed by any similar enterprise in New England.

Resolved—That it is expedient to procure immediately conditional subscriptions of stock that the road may be commenced as soon as the charter is obtained.

Speeches were made by many gentlemen, and the following persons were appointed a committee to procure a charter for the contemplated railroad:—Messrs. Samuel Veazie, E. L. Hamlin, G. M. Weston, Amos M. Roberts, D. F. Leavitt, W. H. McCrillis, E. C. Rawson.

The route is one of the most favorable in the country, and the road might be built, with the exception of a bridge across the Penobscot river for about $10,000 per mile.

AMERICAN RAILROAD JOURNAL.

Saturday, March 8, 1851.

To Contractors.

OHIO AND PENNSYLVANIA RAILROAD. Sealed proposals will be received at the office of the Ohio and Pennsylvania Railroad Company, in Pittsburgh, until Thursday, the 20th day of March next, for laying the Track from Pittsburgh to Massillon, a distance of 107 miles. Specifications and forms of proposals may be obtained at the office in Pittsburgh, for two weeks previous to the letting, on application to Solomon W. Roberts, Chief Engineer. The proposals must be in accordance with the printed forms, and addressed to the President of the Company.

WM. ROBINSON, Jr., President.

Pittsburgh, Feb. 6th, 1851.

The Stock and Money Market.

The stock market is not so buoyant as at the close of the past week, Prices are somewhat lower. This result has been produced, in part, by the large amount of new securities offering, particularly the new issue of Erie bonds. The friends of this great work, among whom are embraced a very large number of our richest and most influential men, have been reserving themselves for that sale. In addition to this, the very rapid progress of railroads, and the large sums required in their construction, have naturally created some disquiet among those at the head of our monied circles, lest the immense amount absorbed by these works should bring on a revulsion in the market. Many of them feel it necessary, that a check should be put to the rapid growth of these works, and they consequently discourage investment in them. The buyers of bonds, too, make use of every depression in the money market as a means of beating down prices. All these causes combined have tended to render the demand less active than for a few weeks past. But the causes which have produced this state of things are temporary; and as soon as the opening of the season shall have communicated its natural impetus to every kind of business, securities will share in the general improvement.

Money is not likely to be any less abundant for some time to come, on account of what is expended upon our railroads. So long as they are in progress, they call into action all the means of the country, and stimulate every kind of business; and while the expenditure is going on, money will continue plenty. There was no scarcity of money in Massachusetts so long as the construction of her roads were in full blast. Since 1840, that State must have expended nearly $60,000,000 in railroads: equal to an annual expenditure of $6,000,000. For a number of years, the annual amount of railroad calls in that State must have been at least $10,000,000. The expenditure of these vast sums stimulated every kind of business in that State to an extraordinary degree. Massachusetts apparently moved forward faster than any State in the Union. Her prosperity was a proverb. This was ascribed to the influence of railroads. Experience has since shown that a great part of it was fictitious, rather than real, and that it was due to the *construction*, rather than to the *influence* of these works. Their completion put a stop to the expenditure of six or eight millions annually. This amount was so much taken away from the ordinary channels of business and industry, and every kind of employment sustained by it, was left without a support. This cause alone would have been sufficient to have created a scarcity of money.—But the evil did not end here. A large portion of the available means of the State was not only *invested*, but was actually *lost*, by the unproductiveness of her railroads. Every dollar that could be raked together was put into them; and when it turned out that no small portion of this money was actually wasted, as far as income was concerned, it was this cause that produced the stringency which has so long prevailed there. If all the railroads in Massachusetts, or in which her people are interested, had paid a dividend of six per cent., and held out sufficient encouragement that they could continne to do so, no inconvenience would have been felt from the investment of $75,000,000 of the property of the State in railroads. The reason of this is perfectly obvious. If all the investment had paid a fair dividend, every person would have had an equivalent for his outlay. He would have been as well off with his stock as he was with his money, for it would always have commanded money, or would have become the basis of a credit, which would have answered the same purpose. Money in its ordinary form is nothing but a credit, and its abundance bears in the long run an exact ratio to the amount of the property in the community, requiring to be transferred from hand to hand. A person who has an undoubted six per cent. stock, can always command money in any state of the market. There will always be a plenty of money where there are an abundance of such securities; for, as we before said, money is simply a credit, which always exists in proportion to the means upon which to base it. But in Massachusetts, some $25,000,000 were actually lost in public works. Those who invested in them lost so much of the ability to pay, and money became scarce to them, because they had lost the means of getting it. The only way to make it abundant again was to curtail business, or to supply the vacuum created with future earnings. In Massachusetts both of these alternatives have been resorted to, and the result is, a constantly increasing ease in the market.

New England led off in the construction of railroads on a large scale. For these, Boston furnished the means. Almost every other part of the county have now undertaken these works with an equal zeal, and many portions of it to an almost equal extent. New York now stands in the same relation to the railroads of the United States, that Boston did to those of New England. The former now furnishes a great part of the *money* required in the construction of railroads in progress. The accumulated property of a country naturally flows to the commercial emporium, and every section of the county, and all parties who have a great work on their hands, come here for money to make their foreign purchases. As these works are in full blast, and the more important of them have secured abundant means, their progress must make money very abundant for some time to come; at least till they shall be completed. The great question then to be considered, in reference to the effect of the construction of railroads upon the money market, is the productiveness of these works. If they shall prove to be profitable investments, we have nothing to fear from their influence, because they will then become the basis of a credit, which is the equivalent of money; and, independent of this, they will increase the means of those accommodated by them, to a much greater extent than their cost. In such case, they can no more cause a scarcity of money, than can the purchase of a ship or a store, which yield a large return upon their cost. If, on the other hand, these investments to any considerable extent shall be *lost*, then their influence upon the market will be just in proportion to the extent of this loss.

At the present time, the amount invested by this city, and by the capitalists of the country generally, are in the bonds of companies. The calls of our most expensive roads in the Atlantic States, such for instance as the Erie and Hudson River railroads, are almost entirely upon *bonds*. Those of roads in progress, are based upon capital already paid up, so that no loss can happen to the new investments. In the new, and in the western States particularly, the wants of which are now making the greatest draught upon the capital of this city, their people can, without embarrassment, prepare the road for the iron. If the expenditure up to this point shall be entirely lost, it would neither affect those making it, nor the ordinary business of the country. Upon eastern roads, the most expensive items in railroad construction, are the lightest in the west. Now we do not see how the progress of railroads can immediately affect the money market unfavorably, unless it can be so shown, that the amount so invested, or a portion of it, will be lost, of which we cannot at present see any danger.—We do not see how the bonds, which are now the favorite mode of investment, can fail to be good; or, in other words, we see no reason to doubt that both the principal and interest which they represent, will be promptly met. Not only this, but we believe that the stock of western railroads will pay vastly better than the bonds they issue. Such is the general belief, and such is their experience so far. It cannot be otherwise. They are built at a third, or a quarter of the cost of eastern roads, and they must of necessity do a larger business. They will thus be able, not only to carry at much less rates, but will pay much better. Unless then railroads are pushed to such an extent that they will not pay, their construction has a much less tendency to cause a stringency in the market, than is commonly believed. If, on the other hand, we go into speculative movements, and start schemes that can never yield any income, the same state of things will be brought about in New York that we witnessed in Boston.

Another favorable feature in relation to our railroads in progress is the fact, that they supply to a considerable extent, by the increased value of products which they bring to market, the vacuum created in the capital of the country by their cost. Many of our expensive lines will soon pay for themselves in this way.

The means of a large number of our works are furnished by State guarantees. These securities go to Europe for investment, and instead of exhausting our means, such works directly add to our present available capital. What is true of State, is also true of a great many municipal securities, that are well known. A large amount of our best railroad bonds go abroad for investment. It may be a grave question as to the wisdom of contracting so large a foreign debt. We are merely speaking of its effect upon the market.

Such we believe to be a correct view of the effect of our present railroad investments. So long as we confine ourselves to paying lines, and keep clear of speculative schemes, we have little to fear.

This is the limit of safety; and as our roads cannot be built without the aid of our capitalists, it rests with them to say whether our progress shall be a healthy or a speculative one. With them rests the responsibility, not with our companies.

SALES OF STOCK IN NEW YORK.

	March 5. Sales.	February 28. Sales.
U. S '67 Loan.....	115¼	115¼
Erie R.R.....	81¼	82¼
Harlem R.R.....	68	69
Stonington.....	41⅛	42
L.I. R.R.....	23⅛	23¼
Norwich & Wor....	61	61
Del. & Hudson.....	130	133⅛
Rochester & Syracuse	110	112⅛
Reading	61⅛	60
Morris Canal.....	17⅛	20
Erie income	93	93⅛
Hudson River.....	81⅛	82
" " Bonds.	103	104
Utica and Sch'y RR.	122⅛	—
Canton.....	53	58
Farmers Loan.....	64⅛	67⅛

SALES OF STOCKS IN BOSTON.

	March 4.	Feb. 2
Old Colony Railroad.....	67	68¼
Boston and Maine R.R.....	106	105¼
Eastern Railroad.....	103⅛	103⅛
Fitchburg Railroad.....	111¼	111¼
Michigan Central Railroad.....	94⅛	—
Northern Railroad.....	70⅛	72
Vermont Central Railroad.....	34¼	35
Vermont and Mass. R.R.....	—	30
Western Railroad.....	106⅛	107
Ogdensburg Railroad.....	38	39⅛
Rutland Railroad.....	59	58⅛
Boston and Worcester Railroad.	104¼	105
Rutland Railroad Bonds.....	88	85
Ogdensburg Railroad Bonds.....	99⅛	99
Vermont Central R.R. Bonds....	92⅛	92
Boston and Providence R.R.....	85¼	86
Philadelphia, Wilm'gton & Balt.	30¼	30
Concord R.R.....	55⅛	—
Cheshire R.R.....	—	62
Nashua & Lowell.....	—	108⅛
Manchester and Lawrence.....	90	90
Worcester and Nashua.....	51⅛	51

Whitney's Railroad.

The last Congress adjourned without even entertaining Mr. Whitney's railroad project. It has gone to the "tomb of the Capulets." Mr. Whitney's only chance of success was on its first introduction into Congress, and before the public had an opportunity of becoming acquainted with its real character.

Grants of Public Lands for Railroads.

Congress has adjourned without passing any of the reported bills in favor of granting portions of the public lands in aid of railroad projects. We expected this result. There is to our mind but little probability that Congress will make any further grants, unless a general system is adopted by which the works of all the States shall fare alike. Hardly any measure can now be carried through Congress upon its own merits. A large portion of the members must be equally interested, or measures must be carried through in *bundles*, in which each have a ticket.

We presume that the Illinois canal bill could not have been carried through unless the tariff men supposed, that by passing it, they were securing votes for their projects. Finding themselves jockied in this, they will hardly trust themselves to vote large quantities of land to the Western States, unless they secure something substantial in return.

We were very desirous of seeing some of the more important works in the west aided by the general government. But we do not expect this to be done under the existing state of things.

Ohio.

Springfield and Mansfield Railroad.—A meeting was held at Mechanicsburgh on the 12th of February, of the stockholders of the Springfield and Mansfield railroad company, at which the following gentlemen were elected directors, viz:

James Turner, Reuben P. Mann, Wm. Gabriel, of Union county; Obed Hor, of Champaign county; and William Whitely and Charles Anthony of Clark county.

Charles Anthony was chosen President. Wm. Whitely was appointed acting director.

The board resolved to proceed as fast as practicable with the work, and a committee was appointed to employ an engineer. The object of this road is understood to be to form an "important link in the direct line from Philadelphia and Pittsburg to Cincinnati."

Junction Railroad—Railroad from Sankusky to Toledo.—An election was held last week to authorize a subscription by the trustees of Portland township of $50,000 to the Junction railroad, east of Sandusky, and for $100,000 to the road between Sandusky and the Maumee river.

For the $50,000 subscription the vote stood as follows:—

For railroad east.....	474
Against it.....	16
Majority.....	458

Upon this question all electors were entitled to vote.

On the $100,000 subscription the vote stood thus:—

For railroad west.....	312
Against it.....	8
Majority.....	304

Upon this question none but the owners of real estate were entitled to vote.

This is an extraordinary unanimity on a very important question, from which we anticipate happy consequences.—*Sandusky Clarion.*

European and North American Railway.

The Steamer Europa, it is stated, brings private letters from Mr. Howe, who recently went out to England for the purpose of enlisting the home government in aid of the above work, which leaves no doubt of the complete success of his mission.

The Nicaragua Route.

The route of intercommunication, through Central America, between the Atlantic and Pacific oceans, is found to be much more favorable than was expected. The latest information has been received by the steamer Prometheus, at New York, and is thus stated in the Express:

The route has been changed, we learn, much to the advantage of the company. As now arranged under the surveys of Mr. Childs, the chief engineer of the company, and formerly engineer of the State, the Atlantic starting point will be San Juan, and from thence to Lake Nicaragua, a distance of 84 miles. There will be but 12 miles of canal and two or three locks and dams in the river San Juan.

The Lake is navigable to the river Lagas, on the western shore, and from thence to the Pacific, the distance is but 12 miles and thirty chains, where there are two beautiful harbors and of sufficient size and depth of water to ride a large number of first class ships. The Pacific port selected, has been San Juan del Sud, (or the San Juan of the south,) as distinguished from the Atlantic port known as San Juan. The lakes and rivers are navigable at all seasons of the year, and the transit route selected makes the distance from ocean to ocean only 130 miles, with no other interruption than the canal of 12 miles.

The new route saves 150 miles of distance and reduces the contemplated canal by the way of Realejo forty miles. The summit elevation is not over forty feet or three times less than on the line first proposed. The saving of expenses of course will be in proportion, and the route will be much more practicable than the one first surveyed. The "Director" is now running on the Lake Nicaragua, where she is doing a most profitable business, her receipts during the month of January being not less than $8000 a week, or 32,000 during the month. Her communication is between Grenada and the Rapids of Castillo Viejo, a distance of 130 miles. The Director is commanded by Capt. Leighton, and was the first vessel ever taken over the Rapids.

Captain Vanderbilt, who returned in the Prometheus, has examined the harbors on both oceans and completed his plans for opening the line of communication. He reports his plans are nearly completed, and declares that in forty days, three iron boats will be running in connection with the Director. Two of these, the Wilmington and Delaware, are already built, and the other nearly completed. This will make a new and important communication between the two oceans, and greatly increase the business between not only California and New York, but ultimately between the two worlds.

Kanawha Cannel Coal.

We learn from the Kanawha Republican that Howland, Aspinwall & Co., have purchased from Col. Wm. M. Peyton a portion of his coal property on Cole River. It is the intention of the company to supply steamships plying between New York and the Isthmus with coal from this source. The Kanawha river will be improved for this purpose early in the ensuing spring.—*Rich. Whig.*

Alabama.

Alabama and Tennessee Railroad.—We learn that the chief engineer of this road, Mr. Troost, on his recent visit north, purchased 5500 tons of iron, sufficient to complete the road to Montevallo, a distance of 57 miles. The road bed up to this point will be in readiness to receive the iron as soon as it is shipped from England.

The great object of this company is to build their road to Rome, Geo., at which place a junction will be formed with the Georgia railroad, and by means of this with all the roads of the country. The distance from Selma to Rome is about 180 miles. This, the company propose to finish in sections of about 45 miles each year. We presume that they will find no difficulty in doing this. The route is a good one: he county traversed is one of the best in the south, the means of the people ample, and the best feeling prevails in reference to this work.

After the completion of the road to Rome, the company will then, we presume, construct a track to Gunter's landing on the Tennessee river, and thence to the Memphis and Charleston road, for the purpose of opening a communication in a northwesterly direction. When this shall be formed, as well as the one to Rome, the above road will not only be one of the most, if not the most important in Alabama, but will always occupy a conspicuous position among the railroads of the United States.

New York.

Another Railroad.—The Buffalo Commercial Advertiser of Friday learns that a project is on foot to organize a company to construct a railroad from that city to Dunkirk, there to connect with the Dunkirk and State-line road. The new road to be a wide gauge, and connect at that city with the Hornellsville road.

Tennessee.

Chattanooga, Harrison and Cleveland Railroad.—The commissioners of this road met at Chattanooga on the 19th ult., and organized by the appointment of Col. B. R. Montgomery as President, and Col. James A. Whitesides as Secretary of the board.

John C. Gaut, of Cleveland, and B. R. Montgomery and James A. Whitesides, of this place, were appointed agents of the company to receive subscriptions of stock—to employ an engineer to make a survey and map of the road, and an estimate of the cost of its construction, and to take such other preliminary steps as may be necessary to insure a complete organization of the company, and the early construction of the road.

As the line is a short one and few difficulties of route exist, it is the intention of the agents to provide the means of survey at an early period, in order that all interested may be correctly informed as to the character of the work, its length, route, probable cost, etc.

The importance of this line as part of a system, which will not only give a connection between the eastern and western portions of our State by railroad, but also to the Nashville and Memphis road a direct connection with the line, passing eastwardly through the valleys of East Tennessee and Virginia, (and to the roads of the east a connection in time with them,) will now be fairly set before the public, and we doubt not, such an interest awakened as will carry this, an essential part of a Tennessee system of railroads, to a completion simultaneous with the other improvements.—*Chattanooga Gazette.*

Massachusetts.

Old Calony Railroad.—The following gentlemen constitute the board of directors of this company for the present year, viz:—Francis B. Crowninshield, H. Hollis Hunnewell, Wm. J. Walker, James W. Sever, Nathaniel Whiting, Alexander Holmes.

Vermont and Massachussetts Railroad.—The following are the directors of this company for the year 1851:—Thomas Whittemore, of Cambridge, John W. Swift, of Boston, Henry Chapman, of Greenfield, James Ellison of Boston, Joseph Goodhue.

Western Railroad.—The officers of this company for the ensuing year, are:—Wm. H. Swift, president, Ellis Gray Loring, clerk; Stephen Fairbanks, treasurer, and George W. Warren, auditor—a new officer, with a salary of $2500 a year.

Wheeling Bridge.

The Pittsburg Gazette publishes a despatch to the effect that Chancellor Walworth has decided that the bridge at Wheeling must be elevated, the cost of which elevation he estimates at two hundred and eight thousand dollars. If this opinion of Commissioner Walworth who was simply appointed to take evidence in the cause, shall be sustained by the Supreme Court, the decision may be considered as involving the destruction of this magnificent work; for the necessary sum for making the proposed alteration can hardly be raised. We differ totally from the conclusions of the commissioner that the bridge is an obstruction to navigation—except perhaps in a few instances where boats were built in Pittsburg, since the erection of the bridge, expressly with reference to their incapacity to pass under the bridge, in order to get it pulled down—and we trust it may long remain as a monument of art, and an incomparable convenience to the public.—*Winch Rep.*

Pennsylvania.

Norristown, Doylestown, and New Hope Railroad.—The Miners Journal states that preparations are making to push this road through from Norristown to New Hope, where it will connect with the Lambertville and Trenton railroad. It will also connect with the proposed People's railroad near Norristown, and form a continuous railroad from Pottsville to New York, on a much better grade than can be obtained by any other route. It would only require about 25 miles of road to be made to form this connection,—and the interests in New Jersey and in Montgomery and Bucks counties could make it—a single track could be laid down for that distance for less than $400,000. By this route coal could be transported cheaper to New York, than by any other route of railroad now making or in progress.

Central Railroad.—The mountain section of the Central railroad is soon to be placed under contract to provide funds for this purpose, the city of Philadelphia has authorized a new subscription of thirty thousand shares, ($1,500,000) whenever the same amount is raised from other sources, individual and corporate subscriptions. This, it is believed can be readily obtained, and will ensure the early completion of this great work.

Gorgia.

Atlanta and West Point Railroad.—This work is progressing very rapidly. The iron is already laid on about 25 miles of road upon the Atlanta portion of the line. The railroad from Montgomery, eastward, is now completed to within about 3 miles of West Point, and will in a short time be in complete running order to that place. In the meantime, the Atlanta and West Point road will be pushed forward towards its ultimate terminus with all possible despatch.

Important Discovery.

We learn from the Honesdale Democrat, that Mr. E. White of that place has succeeded in constructing a furnace by which glass is manufactured with no other fuel than anthracite coal. The result, adds the Democrat, is so completely satisfactory that Mr. J. Brookfield, the proprietor of the glassworks, has dismissed all his wood choppers, intending as soon as the fires are extinguished for the coming season, to rebuild his furnaces upon Mr. White's plan. Anthracite coal has never heretofore been used in any part of the world in the manufacture of glass.

Ohio.

Toledo, Norwalk and Cleveland Railroad Compady.—A meeting of the stockholders of this company was held at Norwalk on the 18th inst. It was very generally attended from all parts of the line.

The amendments to the charter, granted by the legislature at its present session, was adopted and a general exposition of the affairs of the company and of the progress of the work, made. The contractors who have taken jobs on the western section of the road, are pushing them forward with vigor, and arrangements are being made to put the remaining part of the line under contract.

The whole distance from Cleveland to Toledo by the way of Rawson's Mills, Oberlin, Hamford's Crossings, Norwalk, Monroeville, Bellevue and Freemont, is a fraction over one hundred and ten miles, and of this distance only fifty-six miles, not already under contract or finished, remains to be supplied. It will be filled up with all reasonable despatch.

The Michigan Southern railroad company has been protected in its chartered rights from Michigan city to the west line of Indiana, by the legislature of Indiana.

It is understood that they have succeeded, and that their line from Chicago to Toledo will suffer no delay in an early completion from this cause. This road is of great importance to the interests of the Lake Shore road through this State, and when completed, an unbroken stream of travel will pour around the southerly bend of Lake Michigan, and thence along the line of this road and the shores of Lake Erie.

Alabama.

Union Town Railroad.—By the following proceedings it will be seen that our Union Town friends have organized, preparatory to commencing operations on the railroad between there and this place. We know not what amount of stock has been raised; we presume, however, from their organising they think they can see their way clear. It would indeed, be strange, if a railroad so much needed, along a line, settled with so many wealthy planters, should fall through:

At a meeting of the board of directors—together with the stockholders generally, of the Alabama & Mississippi railroad company, held in Union Town on Saturday, the 8th of February, 1851, James L. Price was elected president of said road. A. P. Walke, secretary, and Wm. T. Moore, treasurer.

At the same meeting an executive committee was appointed consisting of R. H. Adams, J. R. John, and Col. Jno. H. Davidson.—*Selma Rep.*

New York.

Erie Railroad.—The receipts of this railroad for the month of February have been as follows:—

For passengers and mail	$51,743 36
Freight	73,361 84
Total	$125,105 20
February, 1850	102,212 91
Excess in 1851	$22,892 29
The receipts in Jan. and Feb. are	$270,014 00
Same time, 1850	215,167 00
Excess, 25 per cent	$54,847 00

Buffalo and Conhocton Valley Railway.—The Steuben Advocate of the 19th states, that ground on the Buffalo and Conhocton Valley railroad, was broke on that day at Bath, and that in a few days operations on the whole line from Bath to Painted Post will be commenced.

Hudson River Railroad.—The following it is stated is the proposed arrangement to connect the Hudson river railroad with the Central line running from Albany to Buffalo. The Hudson river railroad is to unite with the Western railroad in establishing a ferry from the depots on the eastern side of the river, to pier opposite the foot of Maiden-lane, from which place a bridge will be thrown over the canal basin to Maiden-lane. It is calculated that eleven minutes will be sufficient time to take passengers from the cars at Greenbush, to the cars in the Albany and Schenectady depot. In relation to this matter, the Albany Evening Journal says:

To accomplish this, and have the landing of the two ferry boats at the end of this bridge they will be required to purchase and excavate four pier lots, two above and two below the present cut. The cost of the lots and excavating the same is estimated at $25,000, which sum they ask of the city.

New Railroad from Utica to Syracuse.—The Syracuse Star states that a company of gentlemen,

from Utica, interested in the Mohawk Valley railroad, recently visited Syracuse for the purpose of conferring upon the subject of a new railroad between the above cities, to cut off the circuit at present made by way of Rome. It is stated that the new route will have from 10 to 13 miles over the old one. It is also stated that a sufficient amount of stock has been subscribed to authorize an organization of the company, and that the articles of association have been filed in the Secretary of State's office.

Rutland and Washington Railroad.—The following gentlemen have been elected officers of the Rutland and Washington railroad for the ensuing year:—Merriet Clarke, West Poultney; D. S. Miller, New York; J. W. Baldwin, Boston; John Bradley and T. F. Strong, Burlington; Horace Clarke, Middletown, and H. N. Graves, Greenville, N. Y., directors. M. Clark, president; J. W. Bradley, vice-president; H. Clark, treasurer and superintendent, and E. S. Sunderline, clerk.

Indiana.

Madison and Indianapolis Railroad.—The following table shows the comparative receipts of this road for 8 weeks of the years 1850-51 commencing from January 1:—

	1850.	1851.
1st week	$4,500	$7,000
2d "	4,221	7,500
3d "	4,810	8,100
4th "	4,758	8,100
5th "	3,507	6,100
6th "	3,024	6,450
7th "	3,011	6,100
8th "	3,144	5,500
Total	$30,975	$54,850
Excess, over 75 per cent		$23,875

Rhode Island.

Providence and Worcester Railroad.—The following statement shows the comparative income of the Providence and Worcester railroad company, for the years 1849 and 1850:

	1849.	1850.
Receipts	$217,253 76	$202,701 10
Expenses	101,231 71	95,180 50
Earnings	$116,022 05	$107,579 60
De'ct interest paid on bonds	33,784 62	25,877 33
Net income	$82,237 43	$81,793 27

The directors say, during the past year, considering the depression of business, the road has been operated, perhaps, with as much success as could reasonably have been anticipated.

Ohio.

Mr. E. Gest, chief engineer of the Ohio and Mississippi railroad, has just returned from a visit to the advance party of engineers and a reconnoisance of the line as far west as the flat lands east of Vincennes, and reports that a far better line has been found than he or the most sanguine friends of the road had reason to suppose. It is now reduced to a certainty, that the road can be built at a reasonable cost, with grades in no case exceeding thirty-five feet per mile, curves of not less radius than twenty-five hundred feet, and that the entire distance between Cincinnati and St. Louis will not exceed three hundred and twenty-five miles. The distance from Cincinnati to Louisville is one hundred and thirty-six miles, via the Jeffersonville road, and that of Indianapolis, via the Madison road, one hundred and thirty-two. And also reports that the barren nobby lands of Jackson and Lawrence counties are in every respect equal if not superior to Warren, Butler and Montgomery counties of our own State, their topographical features being very similar, each having their fertile bottoms and uplands—that the cost of getting their wheat to market is now about 30 cents per bushel, which accounts for their standing on the Auditor's books at the rates they do.

If under such embarrassments they pay over the average rates of the State tax, what will they do with the great highway, the Ohio and Mississippi railroad passing through them?—*Cincinnati Commercial.*

Tennessee.

Nashville and Chattanooga Railroad.—We have received the third annual report of this important work, submitted at a meeting of the stockholders, held on the tenth of December, 1850. In reference to the condition and progress of the road the President states:—

"On that portion of the road extending from Nashville to the Tennessee river, a distance of 123½ miles, two-thirds of the graduation and masonry have been done. Timbers for superstructure have been delivered on some twenty miles, nearest to Nashville. On some five or six miles the timbers have been laid down and the iron rails are now being laid on the track. You will see from the report of the Chief Engineer, that the grading of about forty-three miles has been completed; and we confidently expect, in all of next year, to get upwards of seventy miles of road done."

The means of this company, as stated in our notice of the preceding annual report of this company, are ample for the completion of the work. They may be stated as follows:—

City of Nashville subscription	$500,000
" Charleston "	500,000
Georgia Railroad and Banking Co. subscription	250,000
Town of Murfreesboro' subscription	30,000
Individual subscription	780,765
Bonds with State endorsement	500,000
Total	$2,560,765

The total amount already received is as follows:—

Collected on stock	$977,368 57
Charleston city loan	248,000 00
Received for interest on cash loaned out, premiums, &c	7,963 56
	$1,233,332 13

The following shows the amount already expended:—

For iron rails, chairs and spikes	$497,887 98
Graduation, masonry, bridges, engineering, depots, &c	529,049 43
Total expenditure	$1,026,937 41

The present resources of the company are as follows:—

Cash in the hands of agents	$113,438 15
" bank and cash funds	53,631 35
Notes of stockholders	39,325 22
Add the amount of individual stock unpaid	333,396 43
" yet to be paid by Charleston	252,000 00
" Georgia railroad and banking co	250,000 00
" company's bonds en'd. by State	500,000 00
Total	$1,541,791 15

This work is regarded with great interest by every part of the country as an important one in carrying forward the great southern system of railroads to the Ohio river. In relation to this the report says:—

"Before closing this report, your directors deem it not out of place to offer a few remarks as to the probable prospect for business and profit on your road. The object with the friends of internal improvement in the south—one of vital importance to the whole southern section of the confederacy, inasmuch as it is *one* means of securing to the south a *real* permanent independence—is to effect a safe, speedy, certain and uninterrupted communication between the valley of the Mississippi and the Atlantic. Various fruitless attempts have been made to secure this desirable object; but it was for your road to pierce the hitherto impassable barrier of Cumberland Mountain, and open to the produce of the rich valley of the Mississippi, a free passage to the waters of the Atlantic. In order to illustrate more fully the advantages of a system thus far so happily commenced, we think we cannot do better than to compare the distances between some suitable point on the Mississippi, and various points on the Atlantic coast. Cairo, at the confluence of the Mississippi and Ohio, is the nearest point—it is at the head of perpetual navigation, beyond all interruption either from ice in winter or low water in summer, both of which frequently prevent navigation above that point on the Mississippi and Ohio rivers. It is the great reservoir for all the agricultural products of the north and northwest—the natural point of convergence for all the railroads from New York, Boston, Philadelphia and Baltimore, as well as from Charleston and the southern Atlantic ports. Now, what is the distance, and what would be the cost of construction of lines of railway from these different cities to this point; and what the progress made by the several Atlantic cities in reaching it? Boston and New York both have continuous lines of railway to the northeastern end of Lake Erie; Philadelphia and Baltimore have extended their lines westward, but neither has yet reached the head waters of the Ohio; and it will cost more to extend any one of these lines from its *western end to Cairo*, than the cost of the *whole line from Charleston to Cairo*. When our road is done Charleston will be on the Cumberland below obsructions from ice, and if it be desirable to push the road further, there will be but about one hundred and forty miles of road to construct at a cost of about two millions of dollars, ($2,000,000,) thus completing the *entire line from Charleston to Cairo* at a cost of less than $15,000,000, whilst the least cost at which any of the more northern competitors for the trade of the valley can reach the same point, will be three times as great, or $45,000,000!—besides this difference in cost, Charleston is almost three hundred miles nearer to this desired point. With these advantages, the line to Charleston will command all the trade she chooses, or is able to carry, and the profit accruing to the stock of our road must be great.

Moreover, the improvement of Cumberland river by slackwater navigation would cost but about four hundred thousand dollars; and such improvement would enable the boats from the upper Mississippi and its tributaries, and which now have to tranship their freight at St. Louis, to bring their grain, pork, tobacco, &c., to Nashville, ship them to the seaboard, and in return for the produce thus quickly and economically delivered on the south Atlantic, take back supplies of imported goods to their homes on the upper Mississippi, Missouri, Illinois, and other tributaries of the great river.

It seems, therefore, evident to us, that this line of improvement is destined to produce a radical change in the business transactions of the Union; giving, as it will, to the Southern States the carrying trade of the great valley of the west, which has hitherto been monopolized by the northern lines of improvement. Then if Charleston, as is at present indicated, should assert her proper position as a commercial city, and establish lines of ocean steamers to and from the principal ports of Europe, the merchant or planter of the Mississippi valley need go no farther than the "emporium of the south" to ship his produce or receive his imported cargo."

Below we give a portion of the report of the Mayor of Charleston, S. C., who, in behalf of that city, made a very minute examination of the line, and of the whole work in progress. It presents a very condensed statement of the general characteristics of the route:—

The road commencing at Nashville, in Davidson county, continues through Rutherford county, through Bedford, (in which is the branch to Shelbyville;) then 2½ miles through Coffee county; then Franklin, in State of Tennessee; it then cuts the northeastern corner of Jackson county, in the State of Alabama; thence it returns to Marion

county, in Tennessee; thence it runs twice into Dade county, in the State of Georgia; thence out again into Hamilton county, Tennessee, where it finds its terminus at the junction of the Georgia State railroad, at Chattanooga, formerly known as Ross' Landing. At this place a branch track forks off down to the edge of the Tennessee river, which rolls in front of that town. At the junction of the Georgia road, (Western and Atlantic road) the company own a site of 5½ acres, adjoining that of the Georgia road, and have arranged to use their passenger and freight depots in common; thus establishing a straight track into the Georgia line and securing the utmost dispatch, uninterruptedly, to the Nashville and Chattanooga railroad trains.

Upon examining the alignment of the road, it will be found there is only 16 per cent of curvature, including the mountain location, which is necessarily nearly all curved. If the location, exclusive of the mountain be taken, it shows a line, 90 per cent of which is perfectly straight.

It may at this stage of the description be interesting to you, gentlemen, that the passage of the main chain of the Cumberland Mountains, and the ascent of the first bench of the mountain from the waters of Duck river, controlled the entire location of the road. You may not be aware, that for 300 miles extending from the Cumberland Gap to where the mountain abuts on the Tennessee river, the main crest of the mountain is unbroken, except at Montgomery's Gap, in the 91st section. The mountain maintains an elevation of 2,000 feet above the sea, except at the point above mentioned, where a depression of 700 feet occurs, and at this point, the ridge is narrow enough to admit of a tunnel (2,200 feet long,) at an elevation of little more than 1,100 feet above the sea. This gap, then, of the Cumberland, furnished the only opportunity to concentrate that elevation, (viz., 1,100 feet,) in a short distance, to be surmounted by an assistant locomotive. The two great features of the location at Montgomery's Gap, are, first, that the total elevation is 900 feet less than at any other point, and second that the whole of the extraordinary elevation is concentrated within one and a half miles on the northwestern side, and four and a half miles on the southeastern side of the mountain, where an assistant engine can with facility obviate the difficulty, and the same engine could be employed during the interval of passing the trains in collecting and carrying the coal cars to the central depot, opposite Winchester.

At no other point in the mountain is there a ridge sufficiently narrow to admit of a tunnel; nor is there any depression in the ridge, so that the total rise and fall had to be distributed on each side of the mountain, disjoined by its wide summit.

It is manifest, therefore, that an attempt to cross the mountain at any other point would have prevented—in the 900 feet of elevation to be overcome—in the great amount of curvature to which such a line thrown on the mountain sides, must have been subjected—in the enormous cost at which alone it could be obtained—obstacles which would have rendered it impracticable.

This road will be the first, and I presume, the only one which will run across the Cumberland Mountain, to tap the Mississippi valley. You will have now seen that there is no other practicable passage, except at the tunnel, (or 91st section,) and the company are secured by their charter, from any other railroad "being built, cut or constructed, in any way or manner, or by any authority whatsoever, running laterally within 20 miles of this route, unless by said company, or with the consent of the board of directors thereof, for the time being."

The total length of straight line is 134 miles and 1478 feet.

The total length of curved line is 25 miles and 782 feet.

The total length of straight and curved line is 159 miles and 2260 ft.

The total distance from depot at Nashville to depot at Chattanooga is 151 miles less 1100 feet.

The total length of the Shelbyville branch is 7 miles and 5060 feet.

The gradients on the main line in no instance exceed 50 2-10 feet per mile on straight lines and 44 9-10 feet on curved, except on the subdivision crossing the Cumberland Mountain (in the Charleston division,) there it was necessary to resort to a gradient of 105 6-10 feet per mile, and will occasion the use of a powerful assistant locomotive engine to enable the company to overcome it without dividing the trains. From a table exhibiting the gradients of each division, viz: the Nashville, the Winchester, the Chattanooga and Shelbyville branch, divisions, I find that the maximum grade on the Nashville and Winchester divisions ascending eastwardly is 50 2-10 feet per mile, while in ascending westwardly it is only 44 9-10 feet per mile, making a difference of 5 3-10 feet per mile in favor of the western bound trains.

Since the commencement of this enterprise, the work has been pressed forward with all the vigor that the most indomitable energy, based by abundant means, could impart. Every part of the line is making the most rapid progress possible, and we may look for the completion of the entire road at an early day.

Bowling Iron. Stamped B.O.

Railway Tire Bars	Rivet Iron
Locomotive and other Axles	Locomotive Frame do
Boiler Plates	Bars,

and every other description of this superior Iron.

The subscribers, agents for the sale of Bowling Iron, are prepared to execute orders for importation, especially for railway and machinery uses, with despatch from the manufacturers.

RAYMOND & FULLERTON, 45 Cliff st.

Ibbotson, Brothers & Co's CELEBRATED CAST STEEL AND

Best Cast Steel Royal Improved Files, well known as better adapted for Engineers' and Machinists' purposes than any now in use in the United States.

Every description of Square, Octagon, Flat and Round Cast Steel, Sheet, Shovel and Railway Spring Steel, etc., and Steel to order for any purposes—manufactured at their works in Sheffield—and universally known by the old stamp "Globe."

HENRY I. IBBOTSON, Agent.,
218 Pearl st., New York.

Railroad Iron. SPIKES.

Wrought Iron CHAIRS, New Pattern.

THE Undersigned continues to contract, as usual, for the above articles. The reputation already acquired for their excellent quality is a guarantee that strict attention shall continue to be paid to the wants and interests of purchasers.

CHARLES ILLIUS,
20 Beaver St., New York

WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving from their manufactory,

PARK WORKS, SHEFFIELD,

Double Refined Cast Steel—square, flat and octagon.
Best warranted Cast Steel—square, flat and octagon.
Best double and single Shear Steel—warranted.
Machinery Steel—round.
Best and 2d gy. Sheet Steel—for saws and other purposes.
German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.
Genuine "Sykes," L Blister Steel.
Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms by WM. JESSOP & SONS,
91 John street, New York.

Also by their Agents—
Curtus & Hand, 47 Commerce street, Philadelphia.
Alex'r Fullerton & Co., 119 Milk street, Boston.
Stickney & Beatty, South Charles street, Baltimore.
May 6, 1848.

Railroad Iron.

B. O. Railway Tires, Railway Wheels,
Scotch Pig Iron, Tin Plates and Banca Tin,
Muntzs Patent Metal Sheathing,
Baltimore Copper.

Contracts for Rails made on behalf of the manufacturers, for delivery at any ports in the United States, at fixed prices.

Bowling Tires and Tire Bars and Scotch Pigs imported to order.

Muntz's Ship-sheathing, and a general stock of Tin Plates and Banca Tin in store, and for sale by
RAYMOND & FULLERTON, 45 Cliff st.

IRONDALE PIG METAL, MANUFACTURED and for sale by the Bloomsburg Railroad Iron Co.
LINDLEY FISHER, Treasurer.
75 N. Water St., Philadelphia.

Faggotted Car and Engine Axles

FORGED by RANSTEAD, DEARBORN & Co.,
Boston, Mass.

These Axles enjoy the highest repulation for excellence, *and are all warranted.*

Railroad Iron.

3,000 TONS C. L. MAKE 63½ lbs. per yard, now landing and to arrive.

Also contracts made for future delivery of above superior make English Iron.
300 Tons Banks Best Iron, Round, Square and Flat.
200 " English Bar " " " "
10 " 9-16 Square Iron for Railroad Spikes.

For sale in lots to suit purchasers by
DAVID W. WETMORE.
New York, March 26, 1850. 3m

Railroad Iron.

CONTRACTS made by the subscribers, agents for the manufacturers, for the delivery of Railway Iron, at any port in the United States, at fixed prices, and of quality tried and approved for many years, on the oldest railways in this country.

RAYMOND & FULLERTON, 45 Cliff st.

JOHNSON, CAMMELL & Co's Celebrated Cast Steel, AND ENGINEERING AND MACHINE FILES,

which for quality and adaptation to mechanical uses, have been proved superior to any in the United States. Every description of square, octagon, flat and round cast steel, sheet, shovel and railway spring steel, best double and single shear steel, German steel, flat and square, goat stamps, etc. Saw and file steel, and steel to order for any purposes, manufactured at their Cyclops Steel Works Sheffield.

JOHNSON, CAMMELL & CO.,
100 William St., New York.
November 23 1849.

Bowling Tire Bars.

40 Best Flange Bars 5½x2 inches, 11 feet long.
40 " 5½x2 " 7 feet 8 in. long.
40 " Flat " 6x2 " 11 feet long.
40 " 6x2 " 7 feet 8 in. long.

Now in store and for sale by
RAYMOND & FULLERTON,
45 Cliff street.

Wheel, Forge and Foundry Iron.

LOCUST GROVE Wheel Iron of great strength and superior chilling property.

Balt. Charcoal Forge Iron, from Patuxent, Curtis Creek and Gunpowder furnaces.

Elkridge Foundry Iron, of superior strength and softness. Anthracite and Charcoal Iron from Pennsylvania and Virginia. Gas and Water Pipes, Lamp Posts from Elkridge furnace.

LEMMON & GLENN,
3m9 62 Buchanan's Wharf, Baltimore.

S. S. Keyser & Co., IRON WAREHOUSE,

Corner of South and Pratt Streets,
BALTIMORE, MD.

Selling Agents for the Rough and Ready Bar Iron and Elk Boiler and Flue Iron Rolling Mills, Sarah and Taylor Furnaces, and Wrightsville Hollow Ware Foundry, and Dealers in Bar and Sheet Iron, and Cast, Sheer, German, Blister, Spring and Electerised Steel, etc., etc.

Smith & Tyson,

GENERAL COMMISSION MERCHANTS,
No. 25 South Charles St., Baltimore, Md.

AGENTS for the Celebrated Columbia Pig Iron, suitable for Car Wheels and Chilled Rolls.

Columbia refined Charcoal Blooms; Refined Charcoal Juniatta Billet Iron for Wire; Refined Iron for Bridging, of great strength; Cut Nails, Spikes, and Brads; Railroad Spikes and Wrought Chairs. 22tf

Tredegar Iron Works.

ROLLING MILL FOUNDRY AND MACHINE SHOPS. The undersigned continues to manufacture at his Works in this city (from best charcoal metal) Bar Iron of every description, embracing—Rounds and Squares, from ¼ to 5 inches diameter. Flats, from ¾ to 7 inches, all thicknesses. Bands and Scrolls, all sizes. Boiler plate and Plough Iron. Railroad and Locomotive Axles and Tires. Locomotive Frames, Spikes and Plates. Hoops, Ovals, Half Ovals, Half Rounds, Angle, T, L, and indeed every description of Iron usually manufactured, all of which he warrants to be equal to any made in this country. He also manufactures at his Foundry and Machine Shops all descriptions of Railroad Work, say, Locomotives, Railroad Wheels and Axles complete and ready for the road, Railroad Chairs, etc. Also, Marine and Stationary Engines all sizes, Sugar mills and Engines, Horse mills, and every kind of Machinery usually required for the operations of the country. He has paid particular attention to getting up machinery, etc., for Gold Mine operations, and those in want of such work might find it to their advantage to give him a call. J. R. ANDERSON.

Richmond, Va., Sept. 10, 1850.

CUT NAILS OF BEST QUALITY, BAR IRON (including Flat Rails) manufactured and for sale by FISHER, MORGAN & CO.,
75 N. Water St., Philadelphia.

Car Wheel Iron.

100 Tons "Columbia" No. 2 Cold Blast Charcoal Iron.
300 Tons "Salisbury" No. 1, do. do.

For sale by CHARLES T. GILBERT,
No. 80 Broad st.
New York, Sept. 21, 1850.

Railroad Spikes.

THE subscribers are prepared to make and execute contracts for Railroad Spikes of a superior quality, manufactured by the New Jersey Iron Company, at Boonton. DUDLEY B. FULLER & CO.
139 Greenwich st. corner of Cedar.

Railroad Iron.

1650 Tons, weighing about 61 lbs. per yard, 40 tons, weighing about 52 lbs. per yard, and 825 tons, weighing about 53½ lbs. per yard, of the latest and most approved patterns of T rail, for sale by
BOORMAN, JOHNSTON & CO.,
119 Greenwich street.
New York, Aug. 26, 1850.

N.B.—B., J. & Co are also prepared to take contracts for English rails, delivered in any of the Atlantic ports of the United States.

Railroad Iron.

THE Undersigned, Agents for Manufacturers, are prepared to contract to deliver Rails of superior quality, and of any size or pattern, to any ports of discharge in the United States.

COLLINS, VOSE & CO.,
74 South St.
New York, June 1, 1850.

Spikes, Spikes, Spikes.

ANY person wishing a simple and effective Spike Machine, or a number of them, may be supplie by addressing J. W. FLACK,
March 6, 1850. Troy, N. Y

Railroad Iron.

2000 Tons, weighing 58 pounds per lineal yard, of the most approved pattern of T rails, in store and to arrive, for sale by
COLLINS, VOSE & CO.,
74 South St.
New York, June 1, 1850.

Railroad Spikes, Boiler Rivets, etc.

THE Subscribers, Agents for the sale of James S. Spencer's, Jr., Railroad and Boat Spikes, Boiler Rivets, and Wrought Iron Chairs for Railroads, made at his Works near this city, will execute all orders with promptness, despatch, and of the best quality.

ALSO IMPORTERS of English refined and Merchant bar Iron; Extra refined Car and Locomotive Axles (from 3½ to 6½ inches in diameter); B. O. Locomotive Tire (welded by Baldwin). Also, supply Boiler and Flue Iron cut to pattern or otherwise.—Spring, Shear, and Cast Steel, etc., etc., etc.

T. & E. GEORGE.
Philadelphia, November 14, 1850.

Railroad Iron.

THE UNDERSIGNED, HAVING made arrangements abroad, are prepared to contract for the delivery of Foreign rails, of approved brands upon the most favorable terms.

They will also make contracts for American rails, made at their Trenton works, from Andover Iron, in whole or in part, as may be agreed upon.

They are prepared to furnish Telegraph, Spring and Market Wire; Braziers and Wire Rods; Rivets and Merchant Bars to order, all made exclusively from Andover Iron. The attention of parties who require iron of the *very best* quality for special purposes, is respectfully invited. COOPER & HEWITT,
17 Burling Slip, New York.
February 15, 1850.

Railroad Iron.

THE Undersigned, Agents for Manufacturers, are prepared to contract for the delivery of English, Welsh and Scotch Rails, of any pattern and weight, also for every description of English, Welsh, Scotch, and Swedish Iron, Railway Chairs and Spikes, Rivets, Bolts, Nuts, Washers, Chain Cables, Anchors, Tin Plates, German Spelter, Iron Castings, and every description of Machinery.

WILLIAM BIRD & CO.,
Iron and Tin Plate Merchants,
44 Wall st., New York.
And at 5 Martin's Lane, City, London,
and 140 Buchanan st. Glasgow.
July 27th, 1850.

Railway Iron.

THE Subscribers will contract to deliver, in the course of the ensuing Spring and Summer, the best English Rails, made by a particular specification, and of any pattern required.

DAVIS, BROOKS & CO.,
68 Broad st.

On hand for sale, English rails of 58 lbs. to the yard, made by particular specifications.

January 10, 1851. 2m

To Iron Masters.

WANTED—A Person to take charge of a Blast Furnace for Smeling Iron, for further information apply to COLLINS, VOSE & CO.,
74 South street.

Railroad Iron for Sale.

THE Mansfield and Sandusky City Railroad Co. have on hand from twelve to fifteen hundred tons of American Flat Bar Railroad Iron, weighing 38 lbs. to the lineal yard, which they offer for sale at reasonable rates.

The iron has been in use about four years, and is sound and in good condition. It is 2¼ by ½.

It will be ready for delivery at short intervals between the opening of navigation in the spring and the 1st September next.

For further particulars inquire at the office of the company at Sandusky City, Ohio.

C. G. FORBES, President.

December 24, 1850.

Railroad Iron.

THE "Montour Iron Company" is prepared to execute orders for Rails of the usual patterns and weights, and of any required length not exceeding 30 feet per rail. Apply at the office of the Company,
No. 73 South 4th st., Philadelphia,

Or to the Agents,
CHOUTEAU, MERLE & SANFORD,
NO. 51 New st., New York.

September, 1850.

American Railroad Iron.

1000 Tons, weighing 50 lbs, per yard, manufactured by Reeves, Abbott & Co., at the Safe Harbor Iron Works, and now lying in yard at Brooklyn, for sale by

CHOUTEAU, MERLE & SANFORD,
No. 51 New street.

Tubes.

The undersigned are in direct communication with the *Birmingham Patent Lap Welded Iron Tube Company*, for the sale of their very excellent and superior Boiler and Gas Tubes in large or small quantities.—These Tubes are sold very extensively in England and on the continent of Europe are sold exclusively by

WM. BIRD & CO.,
Iron and Tinplate Merchants,
44 Wall st., New York
5 Martin's Lane, City, London,
and 140 Buchanan st., Glasgow.

Wanted.

WANTED—A Situation in a Civil Engineer's office, by a Young Gentleman from Scotland—has had six years' experience as a practical Draughtsman, Architect, Surveyor, and Leveller in one of the principal civil engineering establishments in Scotland. First rate reference given. Apply to Messrs. Cooper & Hewitt, 17 Burling Slip, or to

JAS. SNEDDON,
23 Harrison st.

Wanted.

A Second-hand Locomotive of 10 to 15 tons weight. A note, giving lowest terms, addressed to A. B., Railroad Journal Office, will receive attention.

January 9, 1850.

India-rubber for Railroad Cos.

RUBBER SPRINGS—*Bearing and Buffer—Fuller's Patent—Hose* from 1 to 12 diameter Suction Hose. *Steam Packing* from 1-16 to 2 in thick. *Rubber and Gutta Percha Bands.* These articles are all warranted to give satisfaction, made under Tyer & Helm's patent, issued January, 1849. No lead used in the composition. Will stand much higher heat than that called "Goodyear's," and is in all respects better than any in use. Proprietors of railroads do not be overcharged by pretenders.

HORACE H. DAY,
Warehouse 23 Courtlandt street
New York, May 21, 1849.

Great Work on Bridge Building, etc., etc.

JUST published in medium folio, One Dollar, 75 cts. to subscribers.

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The present part contains beautifully executed plans, elevations, sections, and details of the Iron Lattice Bridge 140 feet span over the canal in the suburbs of Dublin on the line of the Dublin and Drogheda R.R., Plans, elevations and sections of the Timber Bridge over the Schuylkill, at Market st., Philadelphia, with Arches 160 and 190 feet span. Plans, elevations and sections of a Timber Bridge with Arches 155 and 200 feet span over the Delaware. Also, plans, elevations, sections and details of Lattice and Frame Wood Bridges, explanatory of Nathaniel Towns and Colonel S. H. Long's methods of constructing Bridges of Wood, with the continuation of the Articles on Coffer dams, Concrete, Limes, Mortars, Cements, etc.

Published by George Duggan, 300 Broadway, New York, to whom all communcations should be addressed and subscriptions forwarded.

☞ Parties remitting Mr. Duggan $5. and the remainder $4 when they have been supplied with the first six parts of the "Theoretical and Practical Treatise on Bridge Building, etc.," shall receive it monthly as published. To those making Mr. Duggan a present remittance of $9, the work will be forwarded post free to any part of the United States.

Great American Engineering

AND MECHANICAL WORK, just published in medium folio One Dollar, 75 cts. to Subscribers.

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Also plans, elevations, sections, isometrical views and details of an Iron Bridge 356 feet long, with Arches 81 feet span, erected by the N. York Iron Bridge Co. over Moores Creek, on the line of the Virginia Central R.R., and plans, elevations and sections of an Iron Plank Road Bridge 160 feet span, erected over Buffalo creek by the same company, with a description of Col. Long's method of constructing Bridges in Iron, and an explanation of the causes that led to the failure of the Iron Bridge 60 feet span, near Lackawaxen, on the line of the New York and Erie R. R., at midday, on the 31st July last, by which several lives were lost, and a great amount of property destroyed.

Published by GEORGE DUGGAN,
300 Broadway, New York.

To whom all communications should be addressed and subscriptions forwarded.

Railroad Lanterns.

COPPER and Iron Lanterns for Railroad Engines, fitted with heavy silver plated Parabolic Reflectors of the most approved construction, and Solar Argand Lamps; manufactured by

HENRY N. HOOPER & CO.,
No. 24 Commercial St. Boston.

August, 16, 1849. 6m33

For Sale.

TWO Locomotive Engines—10½ tons weight, built by Baldwin. Also Four Eight-wheeled Passenger Cars, with side seats, all in good running order. Apply to WM. E. MORRIS,

Office of Philad., Germantown & Norristown Railroad Co., 9th and Green sts., Philadelphia. 3m5

TO RAILROAD COMPANIES, CAR MANUFACTURERS, etc.

THE Undersigned hereby gives public notice, that the Commissioner of Patents, pursuant to his decision in relation thereto, on the 8th day of October, 1850, issued to him a Patent for the sole right to manufacture, and exclusive use of the INDIA RUBBER CAR SPRING, on account of priority of invention of said Spring. F. M. RAY

New York, Oct. 23, 1850.

Iron Trade of Pennsylvania.

DOCUMENTS and Statistics relating to the Manufacture of Iron in the State of Pennsylvania—giving a history of the manufacture from its commencement to this date, illustrated by diagrams. Also tables giving the address and capacity of every establishment in the State. Prepared by direction of the late convention of the trade held in Philadelphia. For sale by

LINDSAY & BLACKISTON, Philadelphia.
FIELDING LUCUS, Jr., Baltimore.
HENRY G. NICHOLS, 79 Water st., N. Y.
or at this office—price $1 00.

It will be sent by mail to any order enclosing the money, and post paid.

Emerson's Patent Ventilator,

ADAPTED to Cars, Engine houses, Public Halls, Factories, Churches, School Houses, Dwellings, Chimney Flues, etc.

This Ventilator is stationary, and cannot get out of order. It is constructed in such conformity to certain ascertained laws of pneumatics, as to insure a constant draft outward, whatever may be the changing direction of the wind. The Massachusetts Mechanic Association have awarded a gold medal to the Inventor, and the Manufacturers have already disposed of over 3,000 of the article. Manufactured and sold by

CHILSON, ALLEN, WALKER & Co.,
351 Broadway, New York.

Providence Tool Co.,

MANUFACTURERS OF

Plane Irons, Tooth Irons, Soft Moulding and Rabbet Irons, Cornice Irons, Plow Bitts, and Planing Machine Knives:

NUTS, WASHERS AND BOLTS.

—ALSO—

PLATE HINGES AND PICK AXES.

They are prepared to execute orders for all descriptions of Cold Punching and Job Work.

WM. FIELD, Agent. RUFUS WATERMAN, Treas.

PROVIDENCE, R. I.

Lovegrove's Patent Cast Iron Water and Gas Pipes.

THE Subscriber, the Inventor and Patentee of the Centrifugal mode of giving form to metallic substances while in a molten state, is preparing to make Cast Iron Water and Gas Pipes, of any dimensions, at prices much lower than they can be made in the old manner, and the pipes warranted to stand a pressure of three hundred pounds to the square inch, and to be soft enough to drill. Steam Engines and all kinds of machinery. Cast Iron Doors and Frames, and Mill Castings of every description, made to order.

THOMAS J. LOVEGROVE,
Machinist and Founder,
West Falls Avenue, below Pratt st., Baltimore.

Railroad Letting, in Virginia.

PROPOSALS will be received at the office of the chief engineer of the Richmond and Danville railroad, until 9 o'clock A. M., Monday, the 10th of March, to be decided the 13th of the same month, for doing all the grubbing, clearing, grading, ditching and masonry, on the Richmond and Danville railroad, in the counties of Amelia, Nottoway, Prince Edward, Lunenburg and Charlotte, comprehending about 45 miles of road.

Profiles and specifications can now be seen at the office of the company in Richmond; and after the 10th of February, at the offices of the resident engineers, on the line, at Burkeville and Keysville.

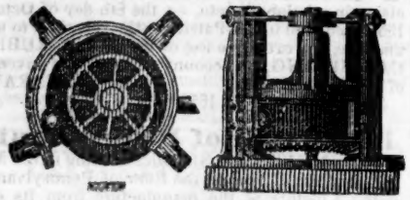
By order of the board of directors,

ANDREW TALCOTT,
Chief Engineer R. & D. railroad.

Engineering department R. & D. R. R. Co., Richmond, Jan. 22, 1851.

MACHINERY.

Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve Iron works in and about the vicinity of Pittsburgh, also at Phœnixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has give universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shingler's, or hammersman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll sounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery *for making Spikes*, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

CHILLED RAILROAD WHEELS.—THE UNdersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

Brown's Old Established SCALE WARE HOUSE,

NO. 234 WATER ST., NEW YORK.

THE Subscriber, Practical Manufacturer of Scales of every description, respectfully asks the attention of Railroad Companies to his Improved Wrought Iron Railroad Track and Depot Scales which for strength, durability, accuracy, convenience in weighing, and beauty of workmanship, are not surpassed by any others in this country.

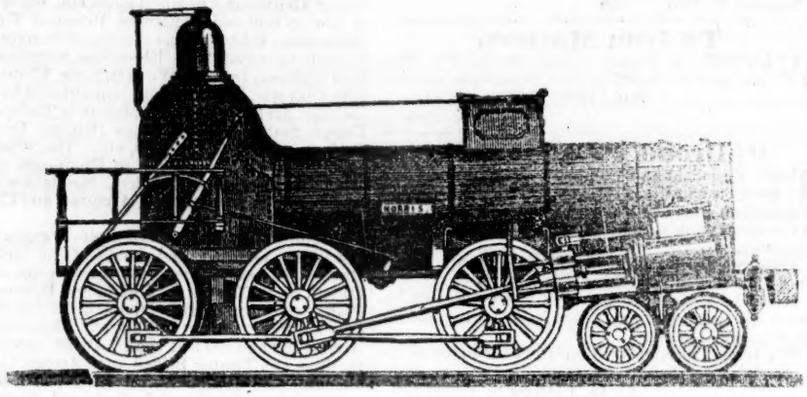
He is aware that this is rather a bold assertion for him to make, yet he can say with confidence that they have but to be tried to give them precedence over all others. J. L. BROWN.

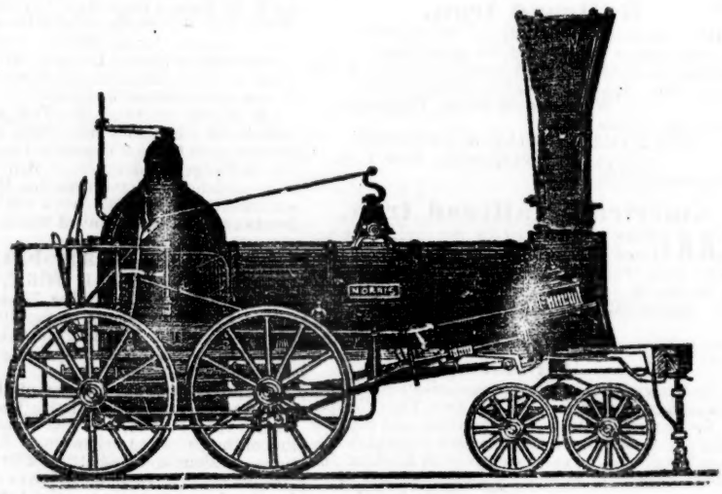
☞ Bank Scales made to order, and all Scales of his make Warranted in every particular.

Referen es given if required

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,





THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size.

Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tires are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS

PATENT MACHINE MADE HORSE-SHOES.

The Troy Iron and Nail Factory have always on hand a general asssortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.

P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

Etna Safety Fuse.

THIS superior article for igniting the charge in wet or dry blasting, made with DUPONT'S best powder, is kept for sale at the office and depot of

REYNOLDS & BROTHER,

☞ *Sole Manufacturers,* ☜

No. 85 Liberty St.
NEW YORK.

And in the principal cities and towns in the U. States.

☞ The Premium of the AMERICAN INSTITUTE was awarded to the *Etna Safety Fuse* at the late Fair held in this city.

November 3, 1849. 1y

COLUMBUS, OHIO,

Railroad Car Manufactory. RIDGWAYS & KIMBALL,

HAVE established at this central point, the manufacture of Passenger, Freight, Gravel and Hand Cars for Railroads, and assure all Western Railroad Companies that it will be their constant aim to procure the best materials and workmen, and to turn out the best kind of work at fair prices. Specimens may be seen on the Columbus and Xenia Railroad. The patronage of Railroad Companies is respectfully solicited. 1y8

FOR SALE.

THREE LOCOMOTIVES, Manufactured by M W. Baldwin, of 10 tons weight, all in complete repair, and now running on the Columbia and Philadelphia Railroad.

For particulars apply to A. L. Roumfort, Supt. of said road, either at Philadelphia, or Parkersburg, Chester county. A. L. ROUMFORT,

Supt. Motive Power Col. & Philad. R.R.

Full sized Sections
OF
THREE-PART-RAILS.

Fig. 1 shews a rail of 150 lbs per yard intended for a track entirely of iron.
Fig. 2 shews a rail of about 65 lbs per yard to be laid on wooden Cross-ties.

The rivets holding the bearing rails to be about 2 feet apart, with an extra one at each joint of those rails.
The rivet holes and stop notches to be oblong.
The stops to be an inch long and at every 4 or 5 feet along the Cap rail.

Fig. 1.

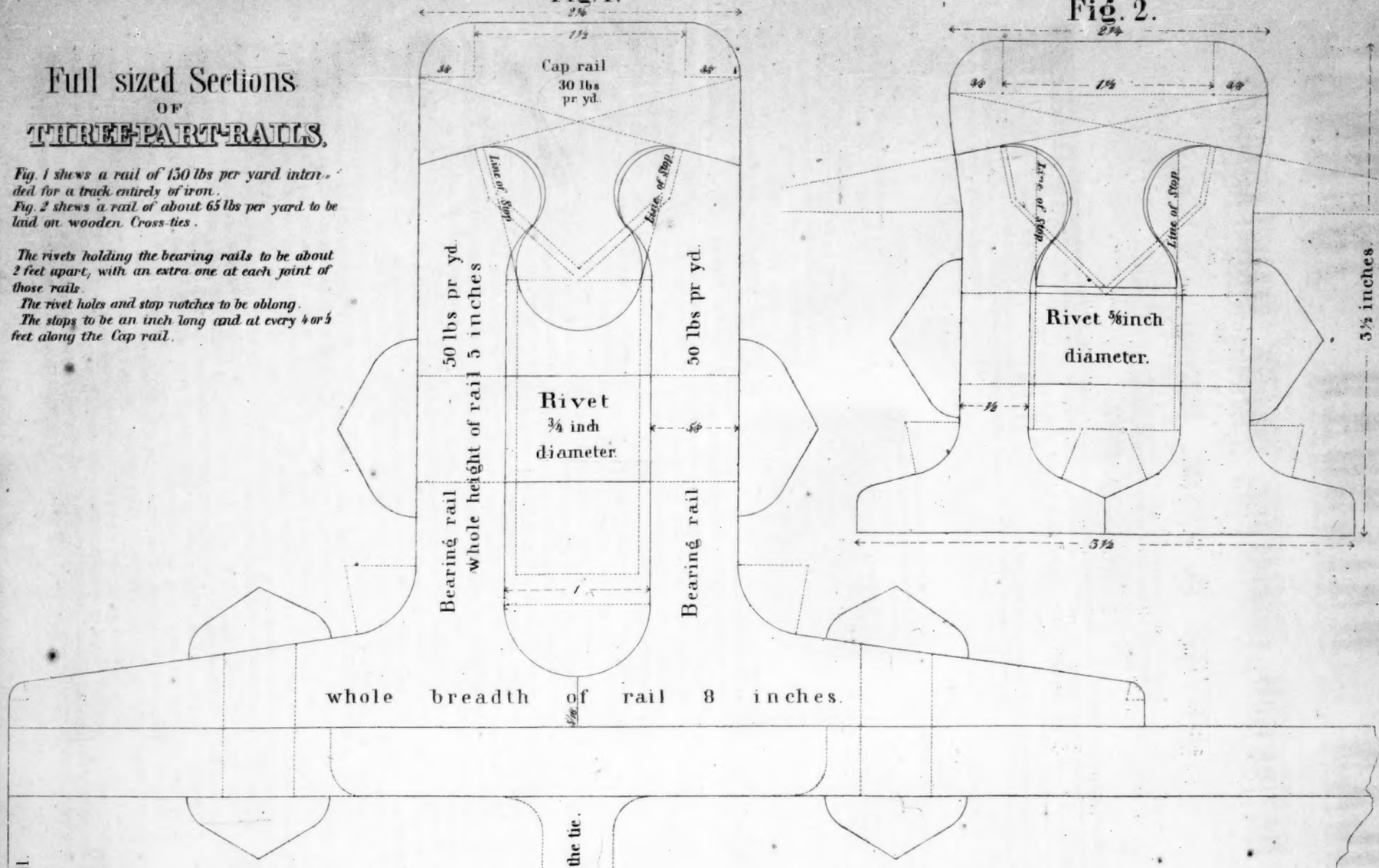


Fig. 2.

End of Cross-tie on outer line of rail.

dotted lines shew the Cross Section of the tie.

Iron Cross-tie at every Joint of bearing rails. Say every 10 feet.

4 rivets (½ inch) at each joint making 8 rivets in each crosstie

Width and depth of Crosstie each 3½ inches.

It is manifest that the Shape and proportional weights of the Cap rail and bearing rails may be considerably varied retaining the principles of the Combination. The Stem of the Cap rail may be extended downwards, as far as desired into the Space between the bearing rails and if it is carried below the rivets and punched, to permit them to pass through; the Stops and their notches will be dispensed with. Thus if the Stem of the Cap were run down as shewn by the dotted lines in figs 1 and 2 the weight of the rail would be increased about 17 lbs in the first and 10 lbs per yard in the second case.